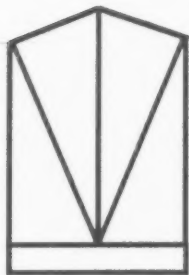


**Shipbuilders
Council of
America**

1987 IN REVIEW



**SHIP
CONSTRUCTION
REPORT**

This publication is the first of a series of quarterly statistical reports to be issued by the Shipbuilders Council of America, which will analyze the following issues on an annual basis. The schedule set for these reports is as follows:

March: New Construction
June: Ship Repair
September: Manpower and Labor Issues
December: Contracts/Financial

Shipbuilders Council of America

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OVERVIEW

1987

For American shipbuilders, 1987 was a year of continued decline. Employment levels dropped to 80,000 production workers from the 1986 level of 85,000. The number of facilities declined to 69 from the 1986 level of 74. This occurred in the face of increased funding of Navy and other government agency programs. In fact, government sources count for nearly 95% of the workload in American shipyards.

When government fiscal resources are expanding, shipyard workload supported by government programs would appear to give the impression that all should be well with the industry. As the data in this report clearly indicates, Navy programs have had a significant impact on the U.S. orderbook. Since the Reagan Administration came into office (1981), 141 naval vessels have been contracted for in the private sector. In the previous seven-year period (1974-1980) of both Republican and Democratic Administrations, the total number of naval vessels ordered was 116. Yet, employment levels have been steadily falling from a peak achieved in 1978 and have been in their sharpest decline since President Ronald Reagan came into office.

Why has this occurred? Decline has occurred because of the failure of the government to present a comprehensive maritime promotional package. In the same seven-year period from 1981-1987, orders were placed for 20 commercial vessels. During the 1974-1980 period, orders were placed for 112 commercial ships. Taken together, combined naval and commercial orders for 161 ships were placed in the 1981-1987 period, compared to 228 ships ordered during 1974-1980 period. In terms of ship orders, this represents a decline of 29% in total ships ordered in the current period over 1974-1980.

Obviously, ship orders alone do not tell the whole story. Current contracts for Navy vessels would appear to create a reasonable backlog in terms of funding. But, the contracts are for technologically complicated combatants. These ships require greater funding on an individual ship basis than was the case in the 1970s. In reality, declining ship orders indicate that the market is concentrating and unstable, even though contract values appear to be high. Thus, ship orders can be an adequate measure of the ability of a market to be sustained both in breadth and depth.

Obviously, the failure of the commercial market is attributable to the fact that American yards must compete in an international market dominated by governments, not firms. When production costs in foreign shipyards are allowed to be offset through direct and indirect means, it becomes impossible for unsubsidized American shipbuilders to compete on a price basis. Yet, the Administration remains silent on the characteristics of the imbalances in international shipbuilding and trade practices.

There is some hope for recovery. The report of the Commission on Merchant Marine and Defense has structured proposals that would link ship operating system reforms with a government shipbuilding program. While this program requires an initial outlay of federal budget dollars, which will be problematical in this environment, there is a reasonable expectation that this program could be forthcoming. It must be linked to tighter enforcement of government cargo preference schemes, which the new fleet can be capable of carrying. These efforts are necessary, according to the Commission, to ensure that the civil infrastructure needed to support potential mobilization requirements will continue to be in place. Without such an effort, continued decline will be evident in the future.

Finally, industry must help itself by turning greater attention to export markets. As the report data clearly shows, our industrial capability is in military shipbuilding. American shipbuilders have never had the support of their government to diplomatically assist them in securing international contracts. We are the finest warship builders in the world. Governmental policies that hinder or fail to support our efforts in this regard must be changed. Government can share in the benefits of increased orders to U.S. yards through the spreading of overhead and other costs, which can have a positive benefit in terms of overall ship costs to the Navy and other government agencies.

While 1987 provided additional governmental workload balanced by further employment decline and shipyard closure, there is increasing desire of U.S. shipbuilders to find alternative markets. Policies to support these efforts will hopefully come from a change in political leadership.

John J. Stocker
President

\$2,288.0 M, 1991 - \$696.0 M, 1992 - \$201.5 M and 1993 - over two billion dollars. As budget pressure intensifies in the next few years, full funding of this program in FY 1988 will pay important dividends to the remainder of the shipbuilding industry.

The Senate's program was fully supported in the Continuing Resolution for fiscal year 1988 and the total funding of \$16.1554 billion is the highest since fiscal year 1983 when the GEORGE WASHINGTON and the ABRAHAM LINCOLN were purchased in the same year. In sum, the President lost six ships (three DDG-51, three MCM) and gained five (two CVN, three CG-47) for a net of fifteen new construction ships and four conversions.

While many individuals worked very hard to bring this fully funded shipbuilding budget to fruition, perhaps no one deserves more credit than the Dean of the Senate, Senator John C. Stennis (D-MS), the chairman of the Senate Appropriations Committee as well as the Defense Appropriations Subcommittee. His contributions were recognized by amendment to the FY 1988 Continuing Resolution which recommended naming one of the two FY 1988 carriers for the Senator.

As a result of the FY 1988 legislation, and as of February 1, 1988, 85 ships are on order for the Navy in 16 different shipyards around the nation with 13 remaining to be awarded. The value of these existing contracts at time of award was \$19.8 billion. Given progress to date on these ships, yard backlog is estimated to be \$10.5 billion with approximately \$4.5 - \$5.5 billion remaining to be awarded to shipyards from the FY 1988 appropriation. To date in FY 1988, the Trident submarine has been awarded to the Electric Boat Division of General Dynamics Corporation for \$644 million and the LHD-3, the third amphibious assault ship, was awarded to Ingalls Shipbuilding Inc. for \$352.7 million.

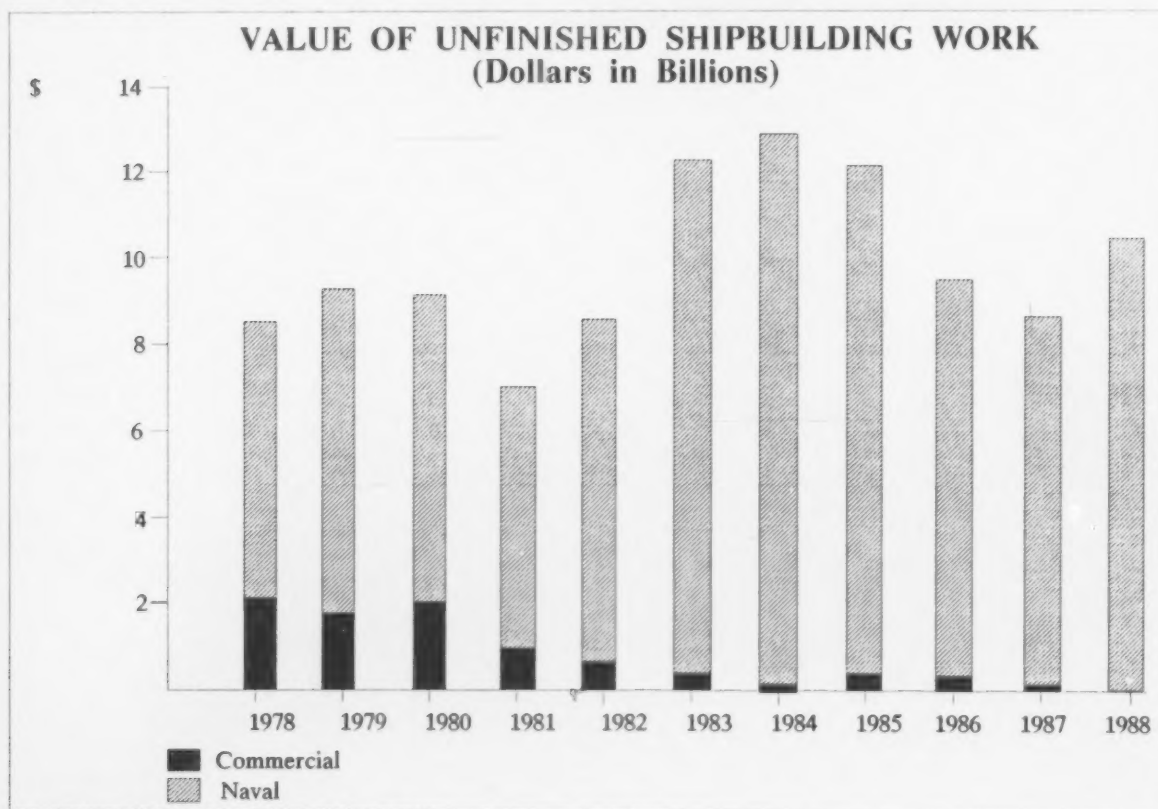


FIGURE 1

Approximate dollar value of unfinished commercial and naval shipbuilding work in U.S. private shipyards as of January 1, 1978-87 and February 1, 1988.

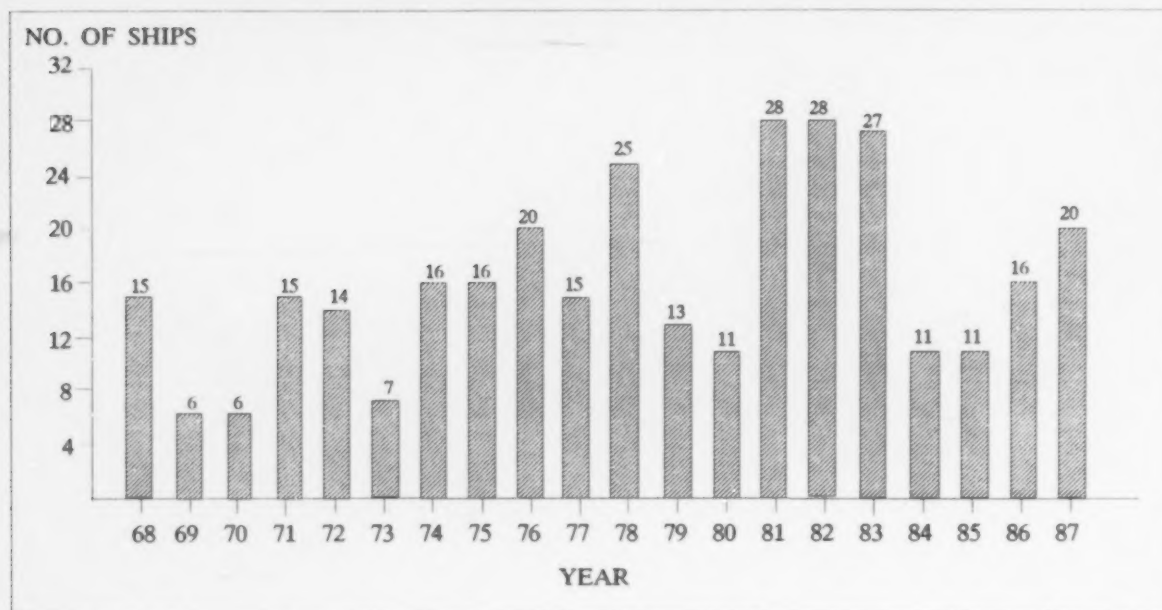
SCN FOUR YEAR PLAN
FY 89 - FY 92
(\$ in millions)

DoD has not revised to reflect
FY 1988 Appropriation. *

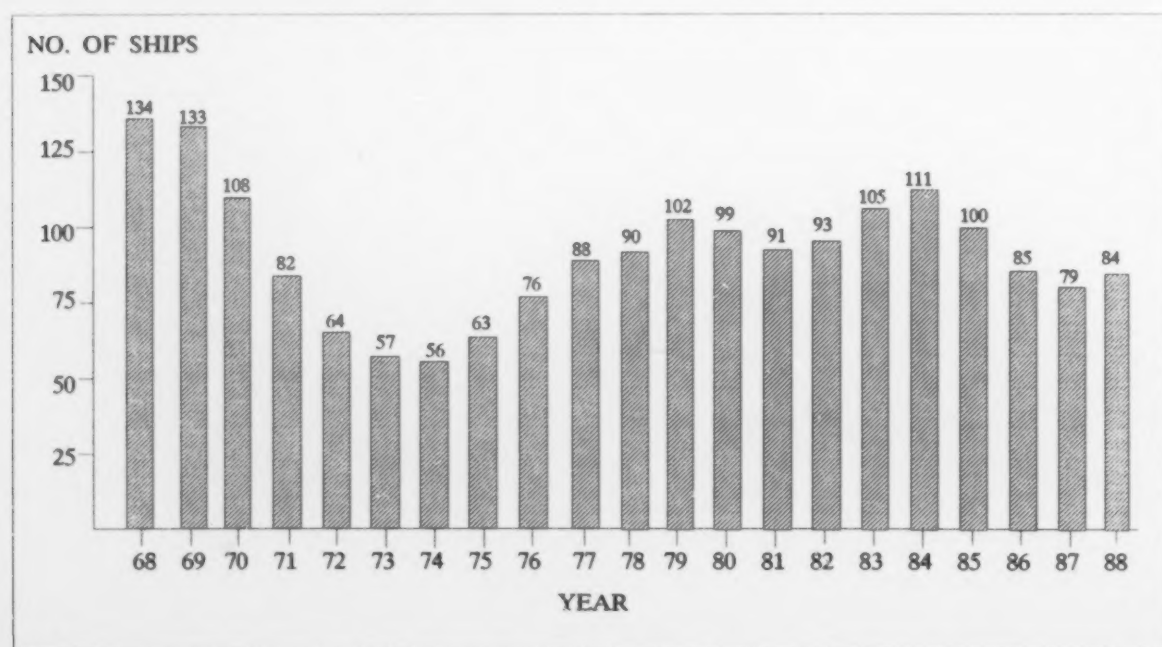
	<u>FY 89</u>	<u>FY 90</u>	<u>FY 91</u>	<u>FY 92</u>
<u>NEW CONSTRUCTION</u>				
TRIDENT	1/1368.1	1/1482.4	1/1546.7	1/1597.0
CVN	-	1/2288.0	696.0	201.5
SSN 688	2/1493.6	2/1503.8	2/1438.3	1/801.2
SSN 21	1/1488.0	583.0	2/2916.6	2/2953.4
CG 47	-	1/951.3	-	-
DDG 5	3/2207.3	3/2394.4	5/3972.6	6/4982.1
LHD 1	1/737.5	41.8	1/1136.5	208.2
LSD 41 (CV)	-	1/294.1	1/304.0	2/595.3
MCM	-	-	-	-
MHC	2/197.2	3/232.6	3/246.4	4/313.7
TAO	2/284.9	2/312.0	1/158.9	-
TAGOS	3/159.6	3/176.5	2/126.7	-
AE	-	-	1/418.0	1/327.2
AOE 6	1/363.9	-	2/903.2	-
ARS	-	1/145.5	-	-
AGOR/TAGS	1/74.0	2/127.4	4/252.1	-
PXM	-	1/114.4	-	4/404.6
LCAC	(9)/192.6	(12)/274.4	(12)/282.3	(12)/289.5
<u>CONVERSIONS</u>				
CV SLEP	135.4	102.8	1/582.4	211.6
AO (JUMBO C)	2/84.9	1/40.3	-	-
TACS (C)	-	-	-	-
<u>OTHER</u>				
SERVICE CRAFT	-	64.5	72.0	151.2
LANDING CRAFT	-	21.9	105.9	107.9
STRAT SEALIFT	-	62.8	13.8	36.9
SEALIFT ENHANCE	-	21.4	21.1	49.4
OUTFITTING	214.7	303.5	273.9	308.6
POST DELIVERY	<u>128.4</u>	<u>220.7</u>	<u>163.6</u>	<u>210.4</u>
TOTAL	9,130.1	11,759.5	15,631.0	13,749.7
<u>SHIP COUNT</u>				
NC/C	17/2	21/1	25/1	21/0

* We do not anticipate a new five year plan until the FY 1990/91 budget is submitted in January 1989.

**NEW NAVAL VESSELS CONTRACTED FOR WITH
U.S. PRIVATE SHIPYARDS EACH CALENDAR YEAR**



**NEW NAVAL VESSELS UNDER CONSTRUCTION OR ON ORDER
AT U.S. PRIVATE SHIPYARDS AS OF JANUARY 1, EACH YEAR**



**NEW NAVAL VESSELS UNDER CONSTRUCTION OR ON ORDER
IN U.S. PRIVATE SHIPYARDS
(1,000 Light Displacement Tons and Over)**

	Jan. 1984	Jan. 1985	Jan. 1986	Jan. 1987	Jan. 1988
	No. LDT	No. LDT	No. LDT	No. LDT	No. LDT
Fast Combat Support Ship (AOE)					1 19,700
Repair Drydock (ARDM)	1 5,300	1 5,300	1 5,300		
Salvage Ship (ARS)	4 10,900	4 10,900	2 5,450		
Guided Missile Cruiser (CG)	12 106,920	14 124,740	12 106,920	13 115,830	13 115,830
Aircraft Carrier (Nuclear) (CVN)	3 213,000	3 213,000	3 213,000	2 142,000	2 142,000
Guided Missile Destroyer (DDG)			1 8,300	1 8,300	3 24,900
Guided Missile Frigate (FFG)	17 46,359	10 27,270	5 13,635	3 8,181	1 2,727
Dock Landing Ship (LSD)	4 44,400	6 66,600	7 77,700	6 66,600	5 55,500
Amphibious Assault Ship (LHD)		1 28,500	1 28,500	2 57,000	3 85,500
Coastal Minehunter Ship (MHC)					1 780
Mine Countermeasures Ship (MCM)	5 5,000	5 5,000	5 5,000	8 8,000	7 7,000
Ballistic Missile Submarine (SSBN)	8 100,000	6 75,000	5 62,500	5 62,500	6 75,000
Attack Submarine (SSN)	19 114,000	18 108,000	15 90,000	17 102,000	19 114,000
Oiler (T-5)	5 45,000	5 45,000	2 18,000		
Ocean Surveillance Ship (T-AGOS)(Monohull)	12 19,200	9 14,400	7 11,200	4 6,400	8 12,800
Ocean Surveillance Ship (T-AGOS)(SWATH)				1 2,486	1 2,486
Oceanographic Survey Ship (T-AGS)			2 17,620	2 17,620	2 17,620
Prepositioning Ship (T-AKX)	5 113,500	5 113,500	2 45,400		
Fleet Oiler (T-AO)	4 38,000	4 38,000	7 66,500	8 76,000	7 66,500
Cable Repair Ship (T-ARC)	1 8,430				
USCG Medium Endurance Cutter (WMEC)	11 13,200	9 10,800	8 9,600	7 8,400	5 6,000
TOTALS	111 883,209	100 886,010	85 784,625	79 681,317	84 748,343

**NEW NAVAL COMBATANT AND AUXILIARY VESSELS CONTRACTED
FOR WITH U.S. PRIVATE SHIPYARDS
(1,000 Light Displacement Tons and Over)**

<u>Calendar Year</u>	<u>Total Vessels</u>	<u>Combatant</u>	<u>Auxiliary</u>	<u>Contract Yards</u>	<u>Light Disp. Tons</u>	<u>Initial Shipyard Contract \$ Value</u>
1968	15	10	5	4	152,591	638,238,500
1969	6	6	0	3	79,533	453,180,000
1970	6	6	0	2	132,000	758,100,000
1971	15	15	0	3	88,044	1,055,000,000
1972	14	13	1	4	85,522	852,204,347
1973	7	7	0	2	38,727	512,345,000
1974	16	14	2	4	171,100	1,387,375,100
1975	16	13	3	6	106,197	1,677,241,000
1976	20	14	6	8	91,322	1,254,169,000
1977	15	12	3	8	88,616	1,575,271,000
1978	25	20	5	8	119,478	2,506,400,000
1979	13	11	2	6	60,646	1,356,752,936
1980	11	8	3	6	101,072	1,933,654,550
1981	28	13	15	10	97,307	2,842,300,500
1982	28	18	10	11	321,040	7,777,200,000
1983	27	12	15	10	431,760	5,041,400,000
1984	11	11	0	6	104,157	2,848,800,000
1985	11	4	7	7	92,320	1,679,400,000
1986	16	12	4	9	117,816	3,034,868,414
1987	20	12	8	10	127,310	3,521,898,835

U.S. COMMERCIAL SHIPBUILDING

On November 9, 1987, Bay Shipbuilding Corporation, Sturgeon Bay, WI delivered the last of three 1,400 TEU containerships to Sea-Land Services, Inc., Iselin, NJ. With the delivery of the KODIAK, no oceangoing merchant vessels are being constructed in the United States. The vessel, with her sister ships, is deployed in Sea-Land's West Coast/Alaska Service.

In contrast to this bleak situation, twelve years ago the order book of domestic shipbuilders consisted of 155 vessels. As the accompanying chart (Figure 2) indicates, the breakdown between Navy and commercial ships was balanced, namely, 76 naval and 79 merchant ships on order.

These figures do not mean that United States ship owners did not place any orders for new vessels in calendar year 1987. On the contrary, U.S. owners placed orders with foreign shipyards for 29 large oceangoing vessels. The total contract value was approximately \$1.5 billion and the mix of ships consisted of containerships, tankers, dry bulkers and cruise ships.

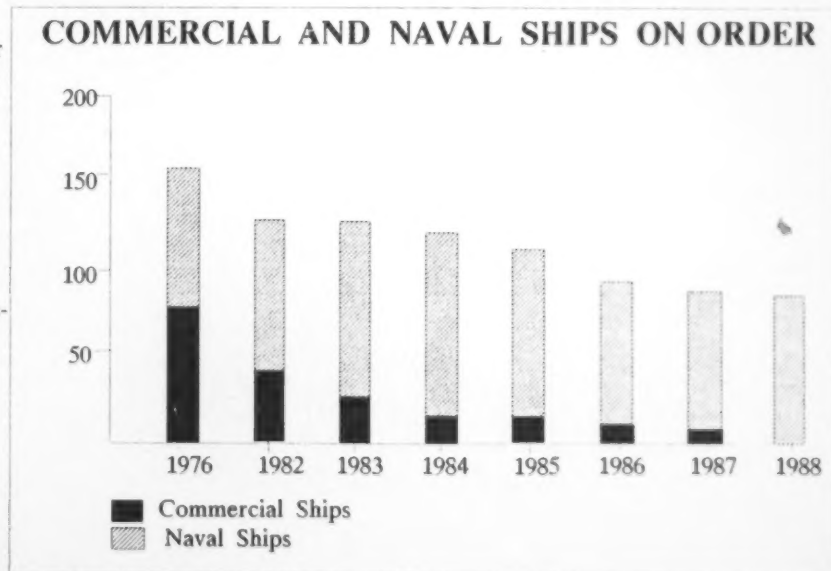
Three sources of hope exist on the horizon for commercial shipyards. The first is the announced plan of Matson Navigation Company, San Francisco, CA to build two containerships and a container barge to serve the West Coast/Hawaiian trade. Since this is considered a coastwise movement, existing statutes require that the ships be constructed in domestic shipyards. The possible entry of American President Lines, Ltd., Oakland, CA into the Westbound leg of the trade with three containerships could force Matson to rethink its plan. Maritime Administration permission is required because APL is a subsidized operator.

The second is the Procure and Charter program recommended by the Commission on Merchant Marine and Defense in its year-end report to the President and Congress. This program is designed to produce commercially viable yet military useful cargo ships both for mobilization requirements and commercial service. The Commission recommends the construction in domestic shipyards of "at least" 12 such vessels per year. The program would be funded through the Maritime Administration budget. If funding is forthcoming, it would represent the first real growth to the agency's budget since the Reagan Administration took office in January 1981.

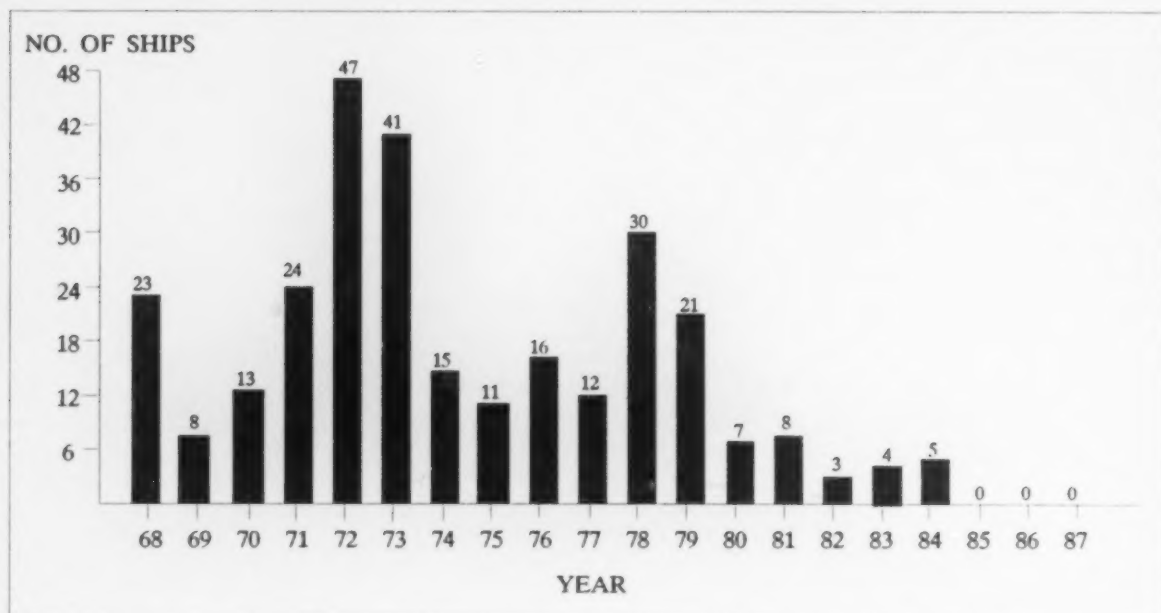
The final source is the "Build and Charter" program for sealift tankers authorized by the Congress in both Public Law 100-180 and Public Law 100-202. These statutes authorize the Navy to undertake a build and charter of six clean product tankers to replace the nine sealift tankers presently serving the point-to-point oil carriage requirements of the Navy.

Figure 2

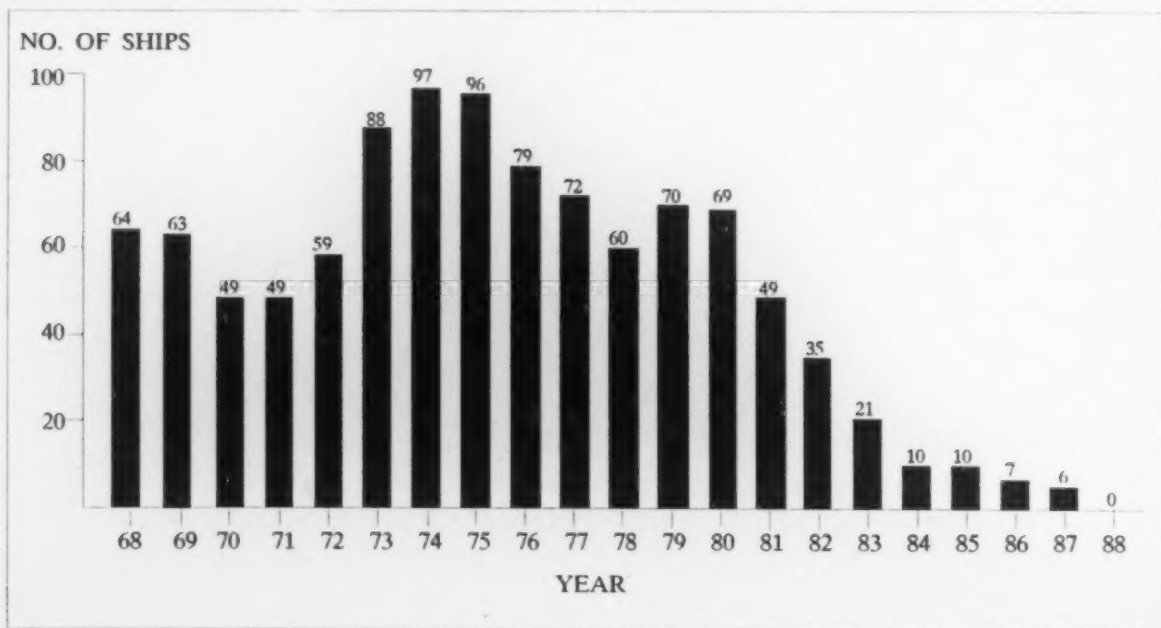
Number of U.S. commercial and naval ships on order as of January 1, Each Year.



NEW MERCHANT VESSELS CONTRACTED FOR WITH U.S. PRIVATE SHIPYARDS EACH CALENDAR YEAR



NEW MERCHANT VESSELS UNDER CONSTRUCTION OR ON ORDER AT U.S. PRIVATE SHIPYARDS AS OF JANUARY 1, EACH YEAR



**NEW MERCHANT VESSELS UNDER CONSTRUCTION OR ON ORDER
IN U.S. PRIVATE SHIPYARDS
(1,000 Gross Tons and Over)**

	Jan. 1984		Jan. 1985		Jan. 1986		Jan. 1987		Jan. 1988	
	<u>No.</u>	<u>G.T.</u>	<u>No.</u>	<u>G.T.</u>	<u>No.</u>	<u>G.T.</u>	<u>No.</u>	<u>G.T.</u>	<u>No.</u>	<u>G.T.</u>
Ferry	2	3,215								
Passenger Vessel			1	1,100						
Passenger and Vehicle Ferry			1	2,100						
Tanker	3	75,000	2	179,400	2	179,400	1	89,700		
Tug/Barge	2	50,000								
Containership			3	48,000	3	48,000	3	48,000		
Hopper Dredge	1	3,000	1	3,000						
Incinerator Ship	<u>2</u>	<u>9,700</u>	<u>2</u>	<u>9,700</u>	<u>2</u>	<u>9,700</u>	<u>2</u>	<u>9,700</u>	—	—
Total	10	140,915	10	243,300	7	237,100	6	147,400	0	0

**NEW MERCHANT VESSELS CONTRACTED FOR
WITH U.S. PRIVATE SHIPYARDS*
(1,000 Gross Tons and Over)**

	Total		Construction Subsidy		Contracted for Government Account		For U.S. Flag No Subsidy	
	<u>No.</u>	<u>Gross Tons</u>	<u>No.</u>	<u>G.T.</u>	<u>No.</u>	<u>G.T.</u>	<u>No.</u>	<u>G.T.</u>
1968	23	614,400	11	209,800			12	404,600
1969	8	309,000	2	36,000			6	273,000
1970	13	579,500	8	358,100			5	221,400
1971	24	617,000	10	416,100	1	5,000	13	195,900
1972	47	1,537,900	25	1,218,400			22	319,500
1973	41	1,978,000	15	985,200	1	5,000	25	987,500
1974	15	1,113,300	2	398,000			13	715,300
1975	11	507,900					11	507,900
1976	16	339,400	6	120,300			10	219,100
1977	12	258,000	9	245,000			3	13,000
1978	30	394,000	10	196,500			20	197,500
1979	21	487,200	4	140,000			17	347,200
1980	7	116,200					7	116,200
1981	8	148,000	2	42,000			6	106,000
1982	3	12,200					3	12,200
1983	4	7,200					4	7,200
1984	5	227,400					5	227,400
1985	0	0						
1986	0	0						
1987	0	0						

*New contracts that were cancelled are not included in this table.

INTERNATIONAL COMMERCIAL SHIPBUILDING

Although the U.S. commercial shipbuilding industry experienced severe financial setbacks in 1987, several countries overseas maintained full merchant orderbooks. The collapse of the U.S. orderbook to zero came as no surprise to U.S. shipbuilders since the competition from Asian and European shipbuilders has been a mainstay for the past ten to twenty years. The fact that three of the top five commercial orderbooks as of January 1988 represent Asian countries is proof of the outcome of this competition.

Since 1978, Asian shipbuilding nations have, collectively, almost doubled their share of world tonnage from 34% to 65%. Of that 65%, South Korea alone represents about half with 32% or 10,783,410 DWT on order. Its share has increased significantly since January 1987 when it was second with 19% to Japan's 35%. The 75 tankers under construction in seven South Korean yards comprise 78% of the country's total deadweight tons, while the remaining 22% consists of bulkers, containerships, dry cargo ships and ro/ros. With 25% of total world tonnage, Japan ranks number two although thirty-six Japanese builders have 159 ships under construction, the largest of the merchant orderbook backlog. Of the 159 ships, 62 are tankers, 39 are bulkers and 35 are dry cargo ships with 52%, 37% and 3.5% of Japan's DWT, respectively. The People's Republic of China (PRC), the third Asian nation, is fourth with 4% of world tonnage on order in eight shipyards. These three countries, out of the thirty-four in the commercial orderbook, represent 61% of total world tonnage and 41% of the world ships on order.

European shipbuilders represent 29% of world tonnage, a 19% decrease from their 48% share in 1978. Yugoslavia, third in the January 1988 orderbook table, has 1,675,668 DWT or 5% of the world's tonnage on order at six yards. Italy, Spain, Romania and Denmark hold the sixth through ninth positions in the world orderbook, yet as an aggregate, these four nations comprise only 11% of total DWT and almost 15% of orders.

With 5% of world tonnage, South American yards have relinquished 44% of the 9% share they held ten years ago to Asian and European builders. Brazil, however, has maintained a strong market position relative to other

Twenty Year Analysis of the Top Ten Merchant Orderbooks

	1988				1978				1968			
	No.	% of World	DWT	% of World	No.	% of World	DWT	% of World	No.	% of World	DWT	% of World
South Korea	121	14.7	10,783,410	32.0	82	4.2	1,502,714	2.8	5	.2	281,000	.4
Japan	159	19.3	8,445,160	25.0	499	26.0	14,018,822	26.2	472	25.6	24,914,010	40.8
Yugoslavia	44	5.3	1,675,668	5.0	43	2.2	1,117,994	2.1	53	2.8	1,284,900	2.1
PRC	57	6.9	1,404,100	4.0	-	-	-	-	-	-	-	-
Brazil	33	4.0	1,379,570	4.1	128	6.6	4,498,240	8.4	44	2.4	434,250	.7
Italy	30	3.6	1,058,760	3.1	56	2.9	1,880,232	3.5	52	2.8	2,040,760	3.3
Spain	30	3.6	993,610	2.9	123	6.4	3,510,974	6.5	83	4.5	1,744,210	2.8
Romania	32	3.9	891,080	2.6	25	1.3	259,520	.5	30	1.6	150,600	.2
Denmark	29	3.5	866,600	2.5	48	2.5	904,435	1.6	34	1.8	2,258,040	3.7
Taiwan	11	1.3	828,410	2.4	32	1.6	932,289	1.7	6	.3	243,420	.4
US	-	-	-	-	60	3.1	3,467,000	6.5	64	3.4	1,221,000	2.0
World	821		33,427,982		1,918		53,493,593		1,837		61,000,500	

American countries placing fifth with 33 ships of 1,379,570 DWT on order.

Although no longer a major contender in the commercial shipbuilding industry, North America maintains a sliver of the market with .34% of the total DWT on order worldwide, a 96% decrease of its 8% share in 1978. Mexico, with two product tankers and one bulker under construction, has 112,600 DWT on order, while a 4,000 DWT passenger/car ferry on order in a Canadian shipyard keeps our Northern neighbor in the world orderbook.

As the table on page 11 indicates, Asian countries have experienced the most significant growth in the commercial shipbuilding segment. From January 1968 to January 1988, South Korean builders expanded their market share of DWT by a staggering 3737% while orders rose 2320% from 5 to 121. PRC, which first appeared on the merchant orderbook in 1980, exhibited a more dramatic growth rate over an eight year period. In January 1980, 2 ships of 32,400 DWT were on order in Chinese shipyards. At the start of 1988, total tonnage stood at 1,404,100, a 4233% increase from 1980 while orders rose by 2750% to 57 during the same period. Although Japanese shipbuilders maintain a quarter of the worldwide commercial shipbuilding industry, orders and tonnage have dropped 68% and 40%, respectively, since 1978.

MERCHANT SHIPS ON ORDER IN WORLD

Year	Europe		Asia		North America *		South America	
	No.	DWT	No.	DWT	No.	DWT	No.	DWT
1968	1,193	33,002,950	492	25,549,360	81	1,461,560	52	505,120
1969	1,228	43,380,180	481	29,604,540	78	1,677,570	55	523,990
1970	1,621	58,728,270	523	32,097,930	58	1,484,300	52	516,340
1971	1,758	75,709,310	667	44,548,560	55	1,873,700	60	691,750
1972	1,725	75,186,160	707	58,536,770	82	2,425,900	69	1,555,540
1973	1,368	68,484,300	582	62,727,220	106	3,356,900	56	1,818,540
1974	1,483	102,761,730	970	103,938,970	130	4,762,390	64	2,070,270
1975	1,576	94,121,027	977	99,257,841	134	5,860,240	122	3,883,550
1976	1,234	65,052,073	889	74,813,649	130	5,730,800	206	6,787,265
1977	1,131	40,413,486	772	30,079,866	101	4,907,060	191	6,148,190
1978	997	24,937,407	672	17,445,783	89	4,084,368	154	5,001,100
1979	739	14,226,061	386	9,108,894	81	2,894,600	128	4,122,730
1980	756	15,215,240	470	14,516,096	80	2,035,962	137	4,361,720
1981	868	18,132,876	540	23,934,581	64	1,322,811	126	3,591,570
1982	854	18,759,741	692	29,487,670	49	1,033,185	106	3,281,040
1983	748	17,375,955	568	20,852,876	29	580,650	82	2,786,583
1984	648	13,760,595	898	29,875,490	21	273,282	73	3,016,230
1985	558	10,072,734	780	32,639,896	20	370,150	71	2,896,640
1986	496	8,156,842	514	23,932,122	15	291,060	56	2,511,645
1987	464	8,524,878	472	20,660,216	12	174,766	47	2,445,195
1988	408	9,325,716	367	22,269,290	4	116,600	42	1,719,140
Percent Change	-65.8	-71.7	-25.4	-12.8	-96.3	-92.2	-25.0	+218.0

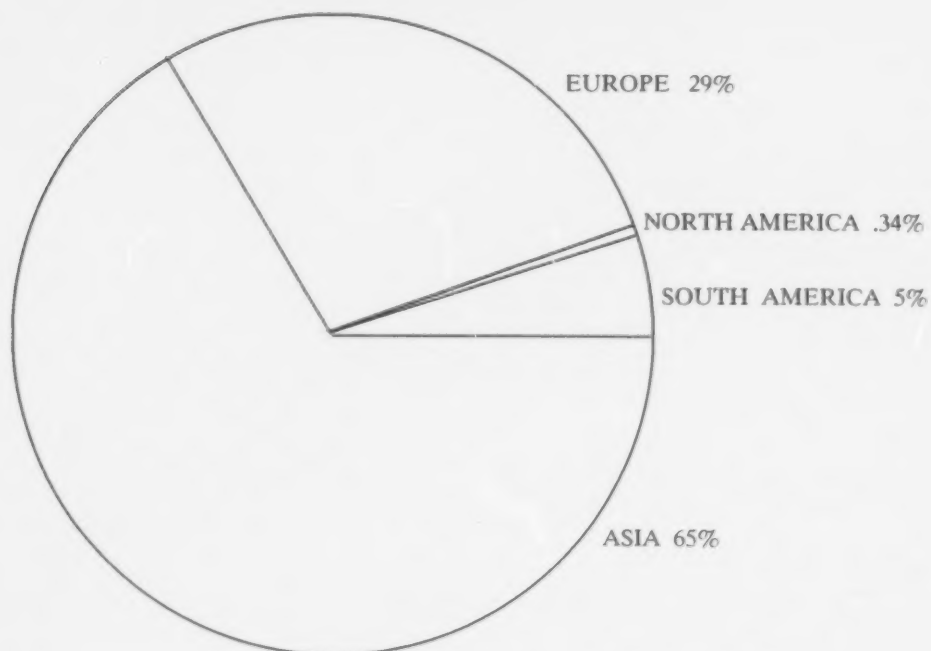
Sources: Ships on Order, The Motor Ship: 1968-1987

Fairplay: 1988

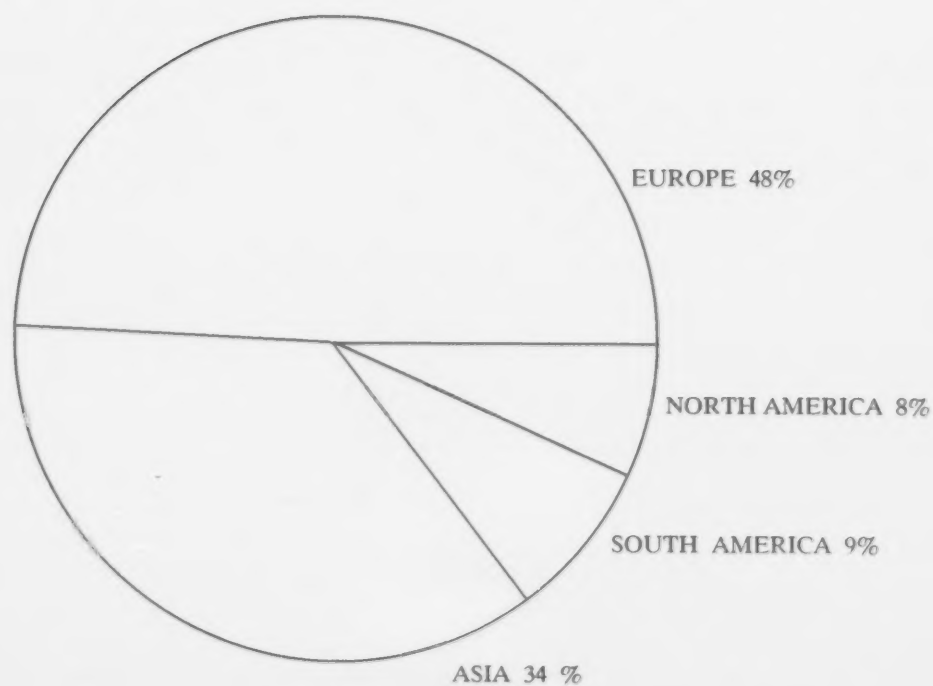
*SCA: U.S. data

DISTRIBUTION OF COMMERCIAL VESSEL TONNAGE AS OF JANUARY 1, EACH YEAR

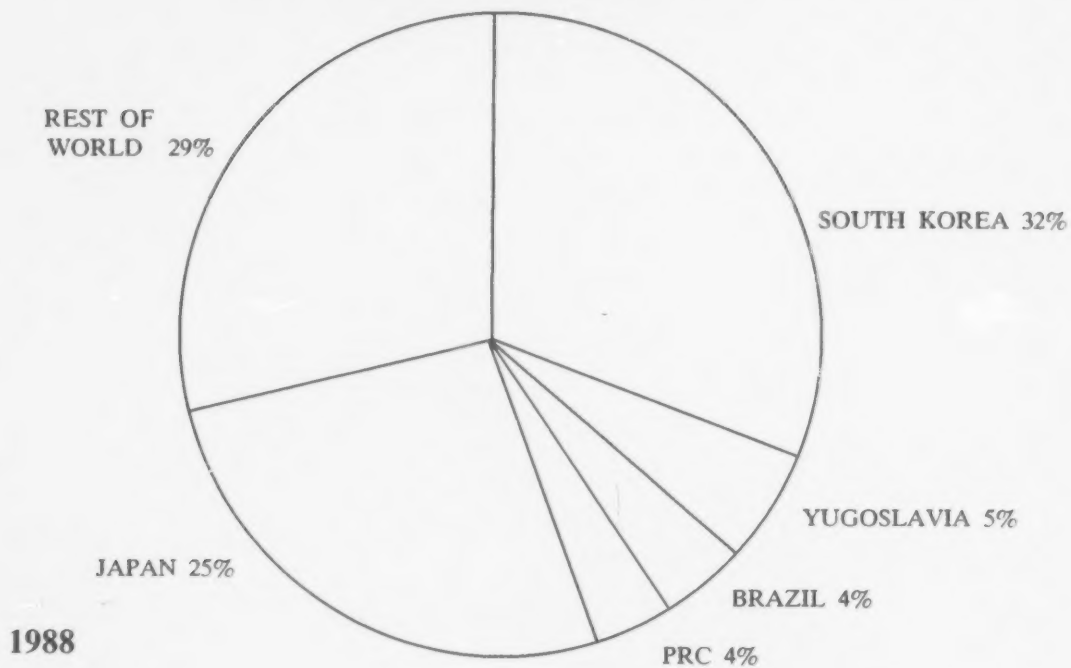
1988



1978



**DISTRIBUTION OF COMMERCIAL VESSEL TONNAGE
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1

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**Shipbuilders
Council of
America**

1987 IN REVIEW



**SHIP
REPAIR
REPORT**

This publication is the second of a series of quarterly statistical reports to be issued by the Shipbuilders Council of America, which will analyze the following issues on an annual basis. The schedule set for these reports is as follows:

March: New Construction
June: Ship Repair
September: Manpower and Labor Issues
December: Contracts/Financial

Shipbuilders Council of America

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OVERVIEW

The ship repair market for U.S. shipyards has been as oriented to the U.S. Navy as has the new construction market. The data in this report shows that U.S. yards will complete 1987 with 86% of repair activity dedicated to U.S. Navy contracts. Yet, repair activity is distorted by governmental policies in much the same manner as the new construction work.

This is seen, in particular, by the fact that the Navy continues to allocate a preponderance of its work to Naval shipyards despite recent evidence that they remain high cost and inefficiently managed industrial facilities. In fact, in a recent study by Coopers and Lybrand, an accounting and management consulting firm operating under a Navy contract, a major finding indicated that "Navy has little demonstrated ability to effectively manage and control industrial operations."

While it is true that a number of the Coopers and Lybrand recommendations have in fact been acted upon, it is also true that the public shipyards continue to receive the lion's share of the Navy's ship maintenance dollars. In fiscal year 1987, the public sector received 67% of the Navy's total ship repair budget, compared to 1982 when 62% of the budget went to Navy yards.

This allocation of work to the public sector comes at a time when the private sector continues to close down facilities and lay off workers. In 1987, five more shipyards shut down and an additional 5,000 production workers lost their jobs. The total since October 1982 is now 41 shipyards closed from the original 110 and the loss of 32,000 production workers from 112,000 in the original count. At the same time, the public sector employment levels continued to show stability and, in some cases modest growth. In October 1987, Naval shipyard employment stood at 72,400, which is a remarkably stable development, when compared to October 1982, when employment was 71,700 in full-time, permanent staff. In addition, this data does not include the increasing use of temporary yard employees, and those military personnel utilized at Shore Intermediate Maintenance Activities (SIMAs) and repair tenders.

The issue of the proper balance between public and private sector workload is one that has become subjected and subsumed to political considerations, rather than a rational discussion on national policy in regard to industrial base maintenance. With the private sector depending on Navy ship repair work to such a great extent, policies in regard to repair strategies have an enormous impact on the private sector. In fact, Navy maintenance policy-makers can determine whether or not the private repair industry will survive the current period. Additionally, it is ironic that during a Reagan Administration period when privatization was an important philosophical tenet, the private sector not only competed directly against the public sector, but also suffered job loss while the public yards prospered.

Concerns over the proper balance between public and private capability, however, may recede into the background as a more immediate concern, in regard to future budgetary resources devoted to Navy ship repair, will move to center stage. Reports of substantial shortfalls in repair funding for FY 1988 continue to be heard. As operations in the Persian Gulf continue and without a request for emergency funding to pay for those operations, nearly \$500 million in Navy ship repair funding is at risk. Deferrals of FY 1988 repairs into FY 1989 will exacerbate problems for future budgets.

Despite increased repair activity internationally, caused in part by the Persian Gulf activities, American shipyards will find their greatest commercial opportunities in the passenger ship arena. Geographical location plays an important part in commercial ship repair and Gulf related repair is not likely to migrate to U.S. facilities.

Finally, in the case of major refits, modernizations or conversions, U.S. yards face the same international subsidy factors as they do in new construction. For example, West Germany will grant 20% subsidies to conversion projects for foreign and domestic owners who do their work in German yards. Thus, the political debate on the future workload balance between the public and private sectors holds the key to the direction in which ship repair facilities will go in the future.

John J. Stocker
President

NAVY SHIP REPAIR

In 1987 the Navy ship repair base in this country included forty-eight private yards and the eight Navy yards. In addition, countless small facilities and machine shops did some minor work toward the overall repair effort. The year saw a continuation of Navy repair policy which increases the number of Selected Restricted Availabilities (SRAs) and Phased Maintenance Availabilities (PMAs) while the number of Regular Overhauls (ROHs) continued to decrease. These trends are demonstrated in the charts on page four and page five. The decrease in ROH funding is dramatic and while the RA/TA funding has risen more gradually, estimates are for a marked increase in FY 1989.

Of interest over the eight year period from 1982 - 1989 is the growth of the "Other" category. It is in this segment that Intermediate Maintenance Activities (IMAs) are funded. This includes tenders (AD/AS) and the Shore Intermediate Maintenance Activities (SIMAs). The Council is concerned that the growth of SIMA funding and manning presages a further reduction in work screened for accomplishment in private shipyards.

The change in Navy maintenance management philosophy is clearly depicted in the private yard chart on the bottom of page five. In 1982, private yards performed only 57 availabilities. By 1989, the policy of selected and phased maintenance will be fully implemented, and the private sector will be accomplishing over twice as many availabilities as in 1982. The difference in the number of availabilities accomplished in the public and private sectors is due to the fact that the Navy yards undertake the long, expensive overhauls and SRAs on nuclear carriers, submarines and cruisers as well as other large complex surface combatants. This work accounts for slightly less than one third of the availabilities each year but requires two thirds of all of the appropriated repair funds to accomplish.

The business base of the private sector shipyards is primarily non-nuclear surface ship repair and modernization. The two private nuclear capable shipyards do some repairs to nuclear submarines, and Newport News Shipbuilding is planning now for the refueling overhaul on USS ENTERPRISE which is a massive undertaking. However, on a day to day basis, non-nuclear surface ships provide the vast majority of our business base. We anticipate that this will continue without change.

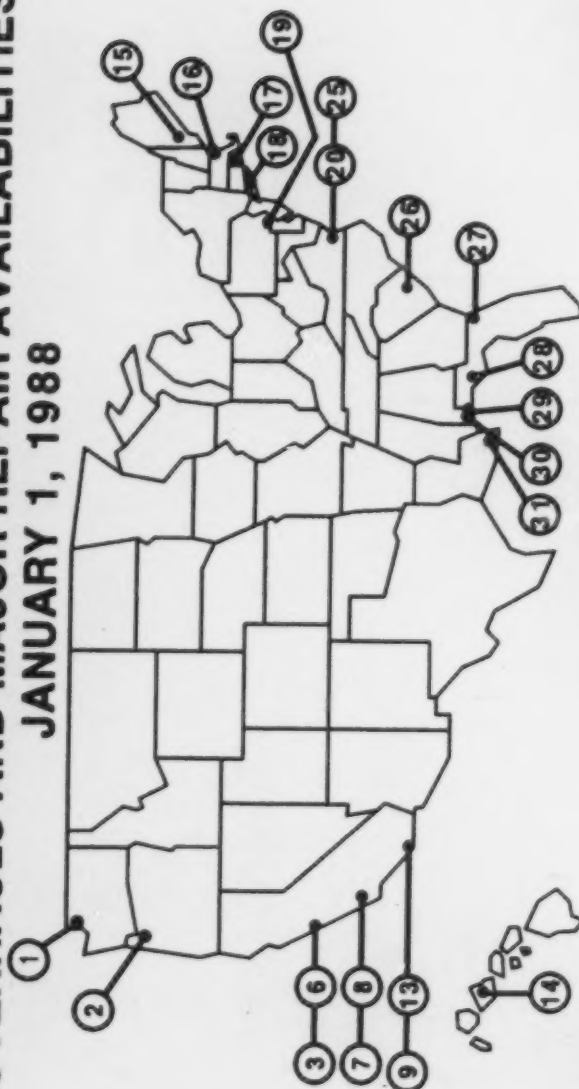
Perhaps the most critical issue facing the industry as we look to the future is the split between Navy yards and the private sector in the years to come. There now exists an overcapacity in non-nuclear ship repair while a looming under capacity in nuclear repair and modernization is predicted for the early 1990s and beyond. One way to ameliorate this impending imbalance would be to close or reduce the number of production workers at the Navy's two non-nuclear capable yards and utilize those billets to enlarge the nuclear repair capacity. Congress and the Navy must also recognize that the private nuclear yards are as much a national asset as a Navy nuclear capable repair yard and ensure that their repair capability is maintained by a steady flow of work just as is done for their own yards.

In like manner, Congress must also recognize the requirement to maintain the non-nuclear shipbuilding and ship repair base. Page 12 of this report shows the variations in shipyard employment in the four geographic locations around the country. The 1982 index is keyed to employment at the 110 private yards included in the Navy/MARAD Shipyard Mobilization Base (SYMBA) study. It appears from this data that the West Coast has been the hardest hit area. However, the relatively small number of employees on the Great Lakes was skewed upward by construction of the three Sea-Land containerships. Now that those ships have been delivered, we expect the Great Lakes index to be at or below the West Coast index.

As long as the Navy and the Congress continue to ignore mobilization base issues and think only of providing a full workload for the eight Naval shipyards, the downward trend of the private sector will continue, particularly if defense budgets decline as predicted. The continuing loss of private sector shipyards is not in our national interest and the trend must be reversed.

PRIVATE SHIPYARDS HOLDING CONTRACTS FOR NAVY OVERHAULS AND MAJOR REPAIR AVAILABILITIES

JANUARY 1, 1988

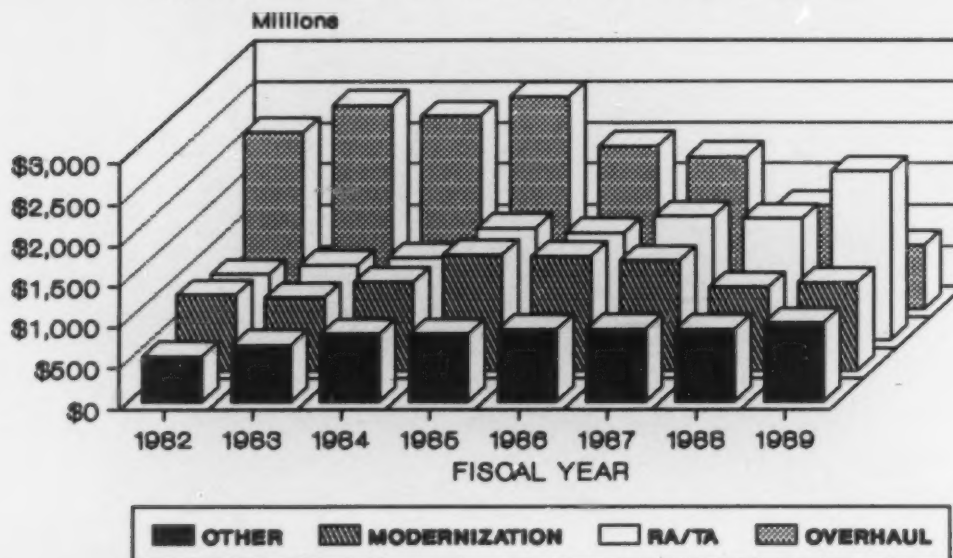


1. Todd, Seattle
2. Northwest Marine
3. Pacific Drydock
4. Continental Maritime, SF
5. Service Engineering
6. Southwest Marine, SF
7. Southwest Marine, SP
8. Todd, San Pedro
9. National Steel
10. Campbell Industries

11. Arcwel Corp.
12. Continental Maritime, SD
13. Southwest Marine, SD
14. Honolulu Shipyard
15. Bath Iron Works
16. General Ship
17. Robert E. Derektor
18. G. Marine Diesel
19. Penn Ship
20. Jonathan Corp.
21. Moon Engineering

22. Norfolk Shipbuilding
23. Metro Machine
24. Newport News
25. Marine Hydraulics
26. Detyens Shipyards
27. Atlantic Drydock
28. Runyan Machine
29. ADDSCO Industries
30. Ingalls Shipbuilding
31. Avondale Industries

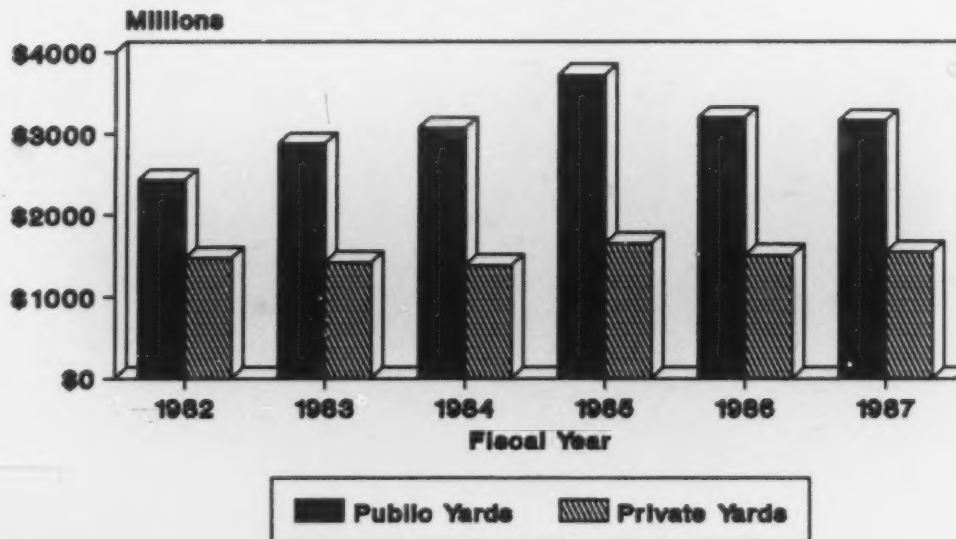
DISTRIBUTION OF NAVY REPAIR DOLLARS



Other includes intermediate maintenance, technical support, outfitting, berthing & messing and inactivations.

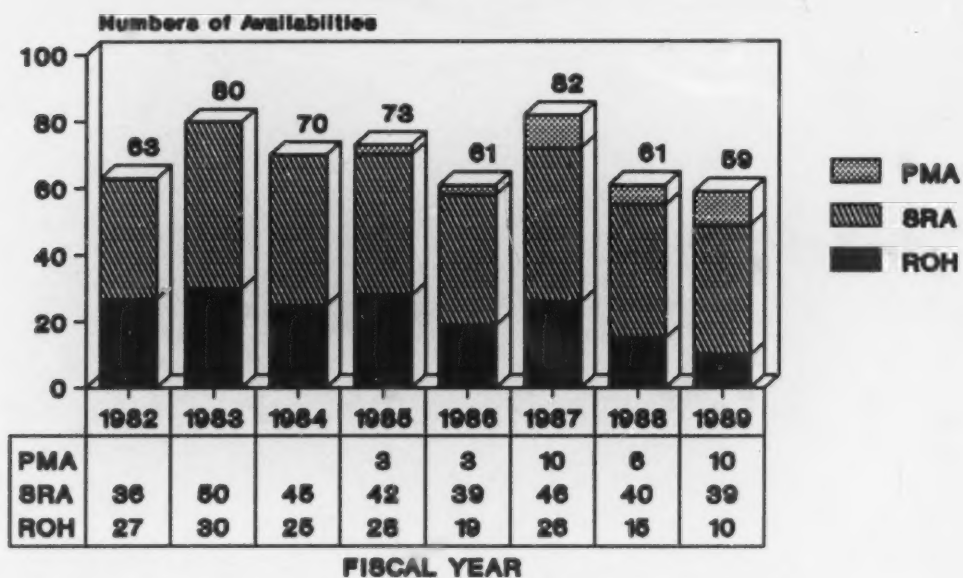
Source: US Navy

DISTRIBUTION OF NAVY REPAIR DOLLARS Public Yards vs. Private Yards



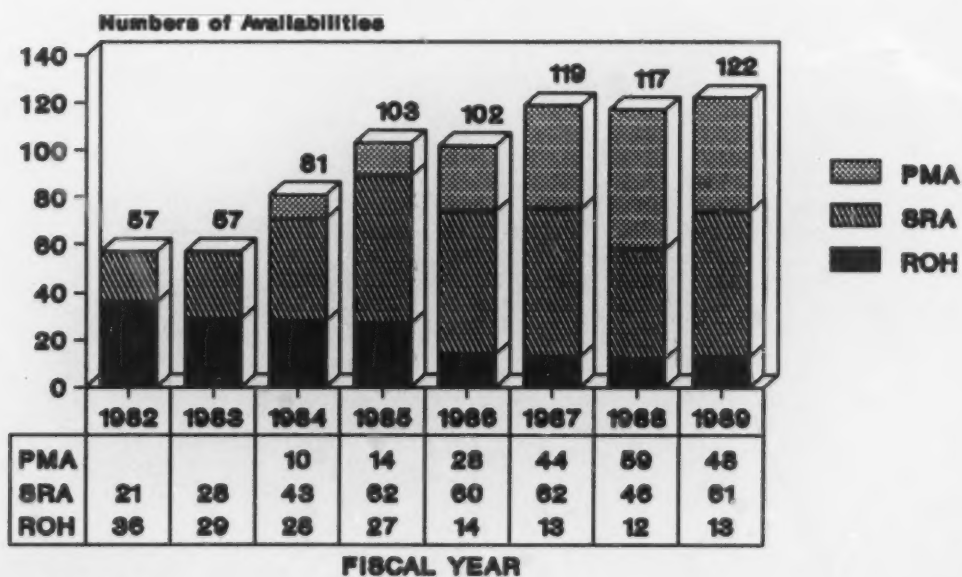
Does not include Other categories.
Source: US Navy

DISTRIBUTION OF REPAIR AVAILABILITIES PUBLIC YARDS



Source: US Navy

DISTRIBUTION OF REPAIR AVAILABILITIES AT PRIVATE YARDS



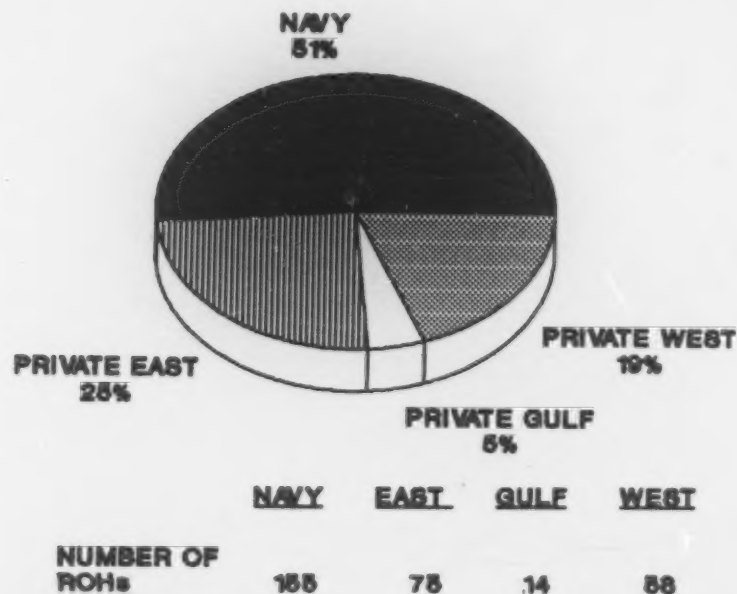
Source: US Navy

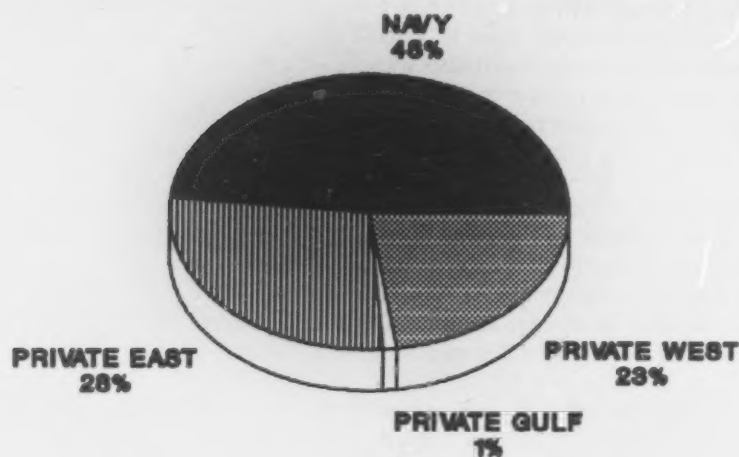
DISTRIBUTION OF REPAIR AVAILABILITIES

The historical distribution of availabilities shown below and on the next page demonstrate how thoroughly the eight Naval shipyards dominate the business base. For example, over half of all ROHs have been accomplished in Navy yards as have forty-eight percent, or almost half of all Selected Restricted Availabilities. Only in the relatively new area of Phased Maintenance has the private sector gained an edge. This is to be expected since the program was initiated using auxiliary and amphibious type ships, normally a strong part of the business base for the private sector.

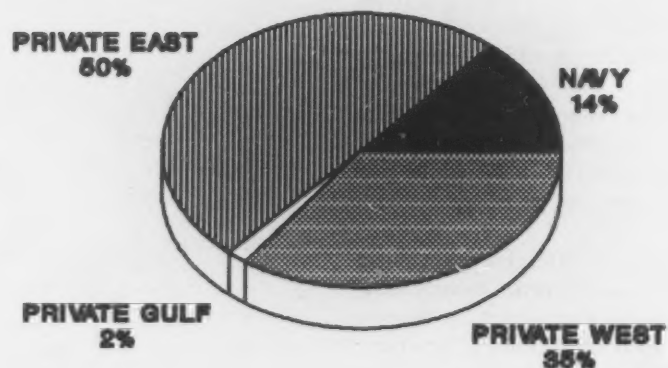
These graphs, which represent the distribution of 302 Regular Overhauls, 534 SRAs and 115 PMAs during a six year period further demonstrate the shift from regular overhauls to Phased or Selected Availabilities. For example, ROHs dropped from sixty-three in FY 1982 to thirty-nine in FY 1987. All but one of the decrease was absorbed by the private sector. In addition, private sector overhauls are primarily concentrated in the low end of the cost spectrum with heavy emphasis on reserve minesweepers and frigates. On the other hand, SRAs accomplished in the private sector tripled during the six year period, from twenty-one to sixty-two while the SRAs accomplished in Navy yards rose only twenty-eight percent over the period. Data for these charts and tables was extracted from U.S. Navy data.

ROH AVAILABILITIES FROM FY 1982 - FY 1987



SRA AVAILABILITIES FROM FY 1982 - FY 1987

	NAVY	EAST	GULF	WEST
NUMBER OF SRAs	259	149	6	121

PMA AVAILABILITIES FROM FY 1982 - FY 1987

	NAVY	EAST	GULF	WEST
NUMBER OF PMAs	16	57	2	40

PUBLIC/PRIVATE COMPETITION

In general, the repair and maintenance of U.S. Navy ships are either assigned to the public (Naval) shipyards or awarded to private shipyards. Since 1974, public shipyards have been allocated approximately 70% of the Navy ship maintenance and modernization dollars while private shipyards have competed with each other for the remaining 30%. Congress initiated this process in fiscal year 1974 when it placed a 70% ceiling on the value of appropriations that could be allocated to public shipyards for ship maintenance and modernization. The Navy has adhered to this Congressional intent as can be seen in the table on page 4.

The allocation method was slightly altered by Congress in fiscal year 1985. Through congressional legislation, funds were made available for two or more vessels to be competed between public and private shipyards. The Navy complied with this direction and initiated a test program which involved two ships. The overhaul of USS DULUTH (LPD-6) was competed on the West coast between public and private sectors, and Northwest Marine Iron Works was declared the winner. In order to compare costs, a similar overhaul of the CLEVELAND (LPD-7) was assigned to Long Beach Naval Shipyard.

In FY 1986, the Navy expanded the competition program. Since that time, 40 U.S. Navy ships have been competed between the public and private sectors. Awards to date total \$882 million. Naval shipyards have won 17 repair availabilities at the announced value of \$652.3 million or 74% of the total while private shipyards received 23 awards valued at \$229.7 million which equates to 26%. Naval shipyards have won most of the nuclear submarine repair availabilities while the private sector has won most of the non-nuclear surface ship repair work.

On March 3, 1988, in testimony before the Seapower Subcommittee of the House Armed Services Committee, VADM William H. Rowden, Commander, Naval Sea Systems Command, stated that FY 1986 and FY 1987 public/private programs both equated to 10.2% of the budgets for ship maintenance and modernization. The FY 1988 program, he stated "includes 20 availabilities-5 overhauls, 2 extended refit periods, 8 DSRAs and 5 SRAs." This equates to 5.2% of the FY 1988 ship maintenance and modernization budget. It should be noted that since that statement one other public/private candidate, USS SAMPLE (FF-1048) SRA has been dropped from the competition and is now a candidate for decommissioning.

The Shipbuilders Council supports the competition of ships between public and private shipyards and would prefer that the Navy open up the competition to include more ship types in larger numbers than has been the case to date. If, as Navy officials claim, the public/private competition process has saved the taxpayers \$200 million, the prudent course to follow would be to expand the number of candidates for competition.

While the Council fully supports competition, we are still concerned that true costs be portrayed when comparing public to private sector bids. On March 25, 1988, the General Accounting Office (GAO) released a report assessing the competition of ships between the public and private sectors. The report was requested by several members of Congress over two years ago.

GAO found that "inherent differences preclude public and private shipyards from competing on an equal footing." GAO identified two cost elements, namely the full costs associated with civilian shipyard employees' retirement and a pro rata share of the costs of the Navy supply system which should be added to the public shipyards' proposals. GAO recommended that the Secretary of Defense should "direct" the Secretary of the Navy to base the certification of public and private shipyard competitive proposals on the proposal prices and "all other costs to the federal government that can be reasonably and objectively identified" and to solicit and evaluate proposals and award competed work on that basis.

The candidates for public/private competition for FY 1989 have not been finalized by the Navy at this time. Five FY 1988 public/private repair availabilities remain to be awarded as of June 1, 1988. The following tables summarize the competition to date and list all of the ships competed since FY 1986.

Public/Private Repair Availabilities Summary

FY 86 - FY 88

No. of Public	Millions of Dollars		No. of Private	Millions of Dollars
14	622.9	Submarines	4	35.2
<u>3</u>	<u>29.4</u>	Surface Ships	<u>19</u>	<u>194.5</u>
17	\$ 652.3	Totals	23	229.7

Unawarded as of June 1, 1988

1 Submarine
4 Surface Ships

Public/Private Repair Availabilities

Name	Hull No.	Avail	Shipyard	Performance Dates	\$ Millions
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FY 1986

SUBMARINES

BEN FRANKLIN	SSBN-640	ROH	Charleston NSYD	7/25/86 - 5/25/88	\$ 111.9
GEORGE BANCROFT	SSBN-643	ROH	Charleston NSYD	6/02/86 - 4/01/88	<u>112.2</u>
Total					\$ 224.1

SURFACE SHIPS

MAHAN	DDG-42	ROH	Metro Machine	9/29/86 - 7/29/87	\$ 13.8
L.Y. SPEAR	AS-36	ROH	NORSHIPCO	8/29/86 - 6/29/87	18.4
ALBERT DAVID	FF-1050	ROH	NASSCO	9/29/86 - 9/25/87	14.6
O'CALLAHAN	FF-1051	ROH	Todd, Seattle	9/29/86 - 9/25/87	16.6
FLETCHER	DD-992	ROH	Long Beach NSYD	9/29/86 - 10/02/87	22.7
FORT FISHER	LSD-40	ROH	Lockport Marine	9/29/86 - 5/29/87	15.4
CLIFTON SPRAGUE	FFG-16	DSRA	Philadelphia NSYD	9/25/86 - 5/08/87	5.1
JARRETT	FFG-33	SRA	Long Beach NSYD	6/24/86 - 10/03/86	1.6
JOHN A. MOORE	FFG-19	DSRA	SW Marine	9/15/86 - 2/05/87	<u>6.0</u>
Total					\$ 114.2

FY 1987SUBMARINES

LAFAYETTE	SSBN-616	ERP	Portsmouth NSYD		\$ 6.4
A. HAMILTON	SSBN-617	ROH	Puget Sound NSYD	11/30/86 - 11/30/88	110.7
KAMEHAMEHA	SSBN-642	ROH	Portsmouth NSYD	11/30/86 - 11/30/88	112.1
WOODROW WILSON	SSBN-624	ROH	Charleston NSYD	7/30/87 - 5/30/89	120.9
LAPON	SSN-661	DSRA	Norfolk NSYD	6/15/87 - 8/18/87	2.7
AUGUSTA	SSN-710	DSRA	Portsmouth NSYD	5/22/87 - 7/20/87	5.7
NORFOLK	SSN-714	DSRA	Norfolk NSYD	8/05/87 - 10/20/87	3.2
PROVIDENCE	SSN-719	DSRA	GD, Electric Boat	9/30/87 - 11/20/87	<u>6.1</u>

Total \$ 367.8

SURFACE SHIPS

BRUMBY	FF-1044	ROH	Bath Iron Works	9/01/87 - 9/01/88	\$ 14.5
P.F. FOSTER	DD-964	ROH	Northwest Marine	7/01/87 - 7/01/88	26.4
TRIPPE	FF-1075	ROH	General Ship	9/15/87 - 5/16/88	8.8
SANTA BARBARA	AE-28	SRA	Metal Trades	5/04/87 - 8/31/87	2.2
FARRAGUT	DDG-37	SRA	Norshipco	4/27/87 - 9/22/87	2.5
COONTZ	DDG-40	SRA	Metro Machine	9/09/87 - 12/23/87	1.6
PRAIRIE	AD-15	DSRA	Southwest Marine	9/14/87 - 2/19/88	<u>7.2</u>

Total \$ 63.2

FY 1988SUBMARINES

LEWIS AND CLARK	SSBN-644	ERP	Newport News		\$ 10.8
GEORGE MARSHALL	SSBN-654	ERP	Newport News		11.2
JOHN MARSHALL	SSN-611	DSRA	Norfolk NSYD	2/08/88 - 4/11/88	13.8
BATON ROUGE	SSN-689	DSRA	Norfolk NSYD	9/30/88 - 11/30/88	5.5
PHILADELPHIA	SSN-690	DSRA	Portsmouth NSYD	9/01/88 - 11/01/88	5.4
MEMPHIS	SSN-691	DSRA	Unawarded	8/11/88 - 10/12/88	
CORPUS CHRISTI	SSN-705	DSRA	Portsmouth NSYD	1/18/88 - 3/18/88	6.4
ALBUQUERQUE	SSN-706	DSRA	Portsmouth NSYD	6/13/88 - 8/12/88	6.0
PITTSBURGH	SSN-720	DSRA	Newport News	3/17/88 - 5/17/88	<u>7.1</u>

Total as of 6/01/88 \$ 66.2

SURFACE SHIPS

A. W. RADFORD	DD-968	ROH	Avondale	5/16/88 - 5/16/89	\$ 20.8
O'BRIEN	DD-975	ROH	Unawarded	7/11/88 - 7/14/89	
KNOX	FF-1052	ROH	Unawarded	8/29/88 - 2/17/89	
STEIN	FF-1065	ROH	Southwest Marine	4/25/88 - 11/01/88	9.1
BOWEN	FF-1079	ROH	Metro Machine	2/15/88 - 10/14/88	6.9
ROBERT E. PEARY	FF-1073	SRA	Unawarded	7/25/88 - 9/30/88	
HAROLD E. HOLT	FF-1074	SRA	Unawarded	6/27/88 - 9/02/88	
OUELLET	FF-1077	SRA	Honolulu Shipyard	3/14/88 - 5/13/88	1.6
ESTOCIN	FFG-15	SRA	Philly Ship	2/02/88 - 5/02/88	3.8
CROMMELIN	FFG-37	DSRA	Todd, San Pedro	5/30/88 - 9/23/88	<u>4.3</u>

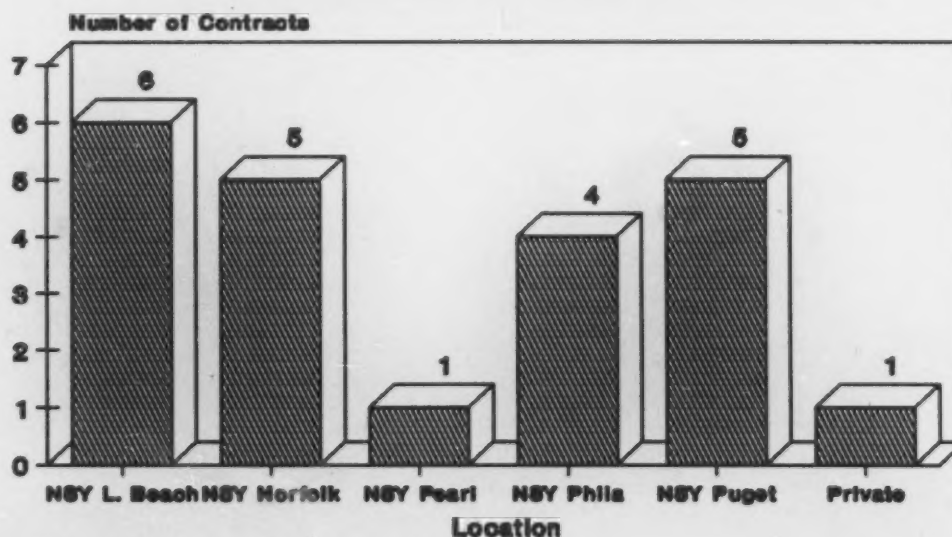
New Threat Upgrade (NTU) Issues

Not since the days of the debate over the aircraft carrier service life extension program (CV SLEP) has a program been the subject of more controversy between the public and private ship repair sectors than that of the New Threat Upgrade (NTU) program. This effort upgrades the radars, computers, processing and display equipment on thirty-one guided missile cruisers and destroyers to permit them to acquire targets, process information and destroy anti-ship missiles which have been developed since these combat systems were designed in the 1950s and 1960s.

The Navy originally planned to do all of these NTU modernizations in Naval shipyards. As the program has unfolded, twenty-one are now scheduled for Navy yards, nine for public/private competition (three in the Atlantic/Gulf area and five in the Pacific) and one, the USS RICHMOND K. TURNER (CG-20), was competed in the private sector and was won by Ingalls Shipbuilding, Inc.

Congressional interest has been high in this division of work. These contracts represent workload for both public and private shipyards in an era when federal budgetary constraints present real problems in balancing available fiscal resources with the amount of repair work needed to keep the fleet at sea. As a result, there is continual interest in whether or not the ships will be allocated to Naval shipyards or will be subjected to competition between Naval yards and private yards. Since Naval yards, in general, fear that they cannot win competitively awarded NTUs, they seek allocation of the work. This allocation process will have the effect of exacerbating budgetary problems since allocation to Naval yards has always led to higher costs rather than the lower costs generated by a competitive process. The private sector will continue to insist that this workload be competed, since it is likely that budgetary problems will persist into the future and the cost of performing these repairs will be lower in the private sector. Thus, the Navy's much needed maintenance can be accomplished within the fiscal constraints of the future.

DISTRIBUTION OF NTU CONTRACTS SCHEDULED FOR ASSIGNMENT OR COMPETITION

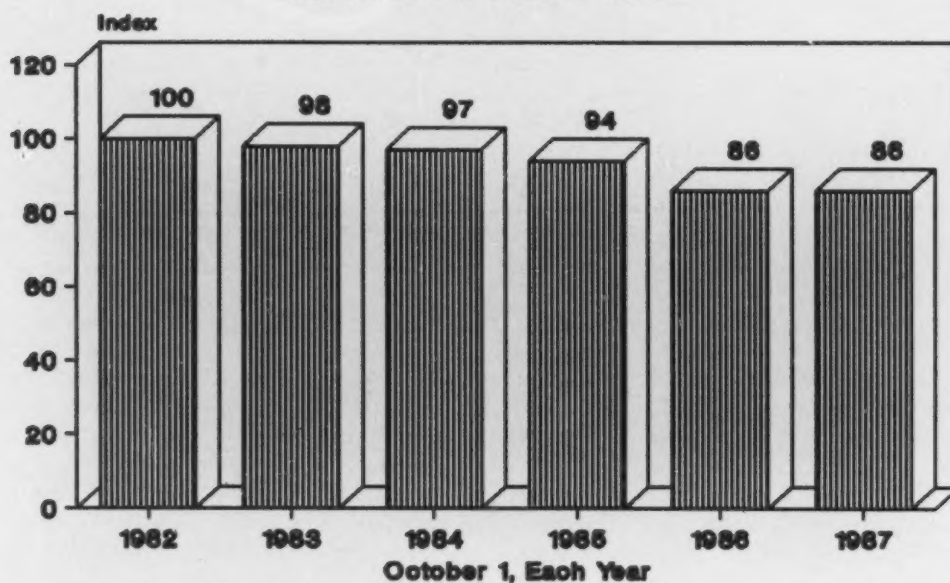


Note: Nine additional NTUs to be competed between public and private sectors.

Source: US Navy

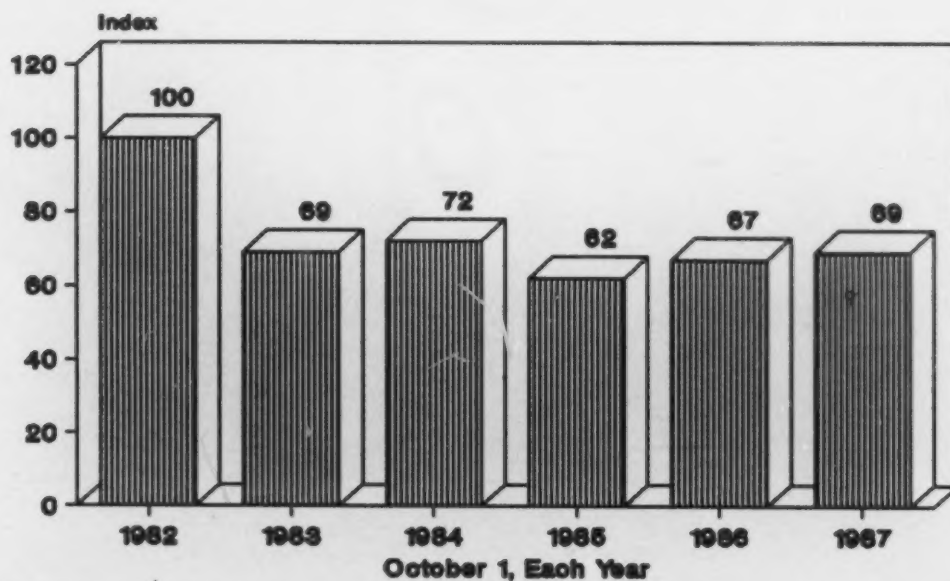
GEOGRAPHIC EMPLOYMENT INDICES (1982 = 100)

East Coast SYMBA Yards



SYMBA: Shipyard Mobilization Base

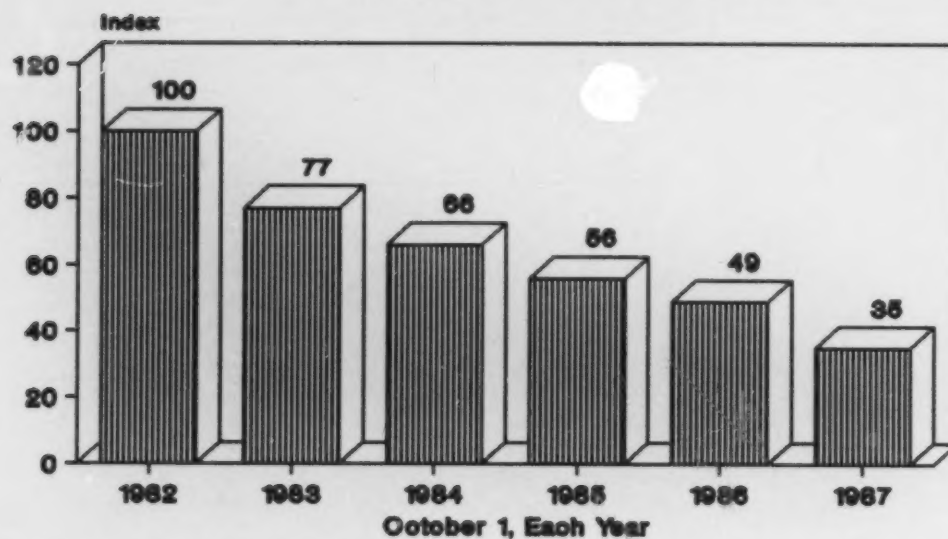
Gulf Coast SYMBA Yards



SYMBA: Shipyard Mobilization Base

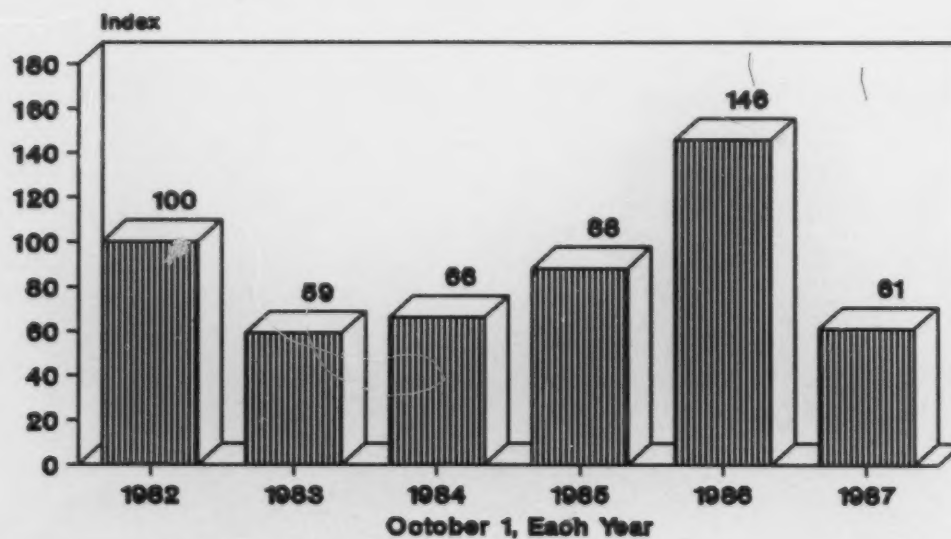
GEOGRAPHIC EMPLOYMENT INDICES (1982 = 100)

West Coast SYMBA Yards



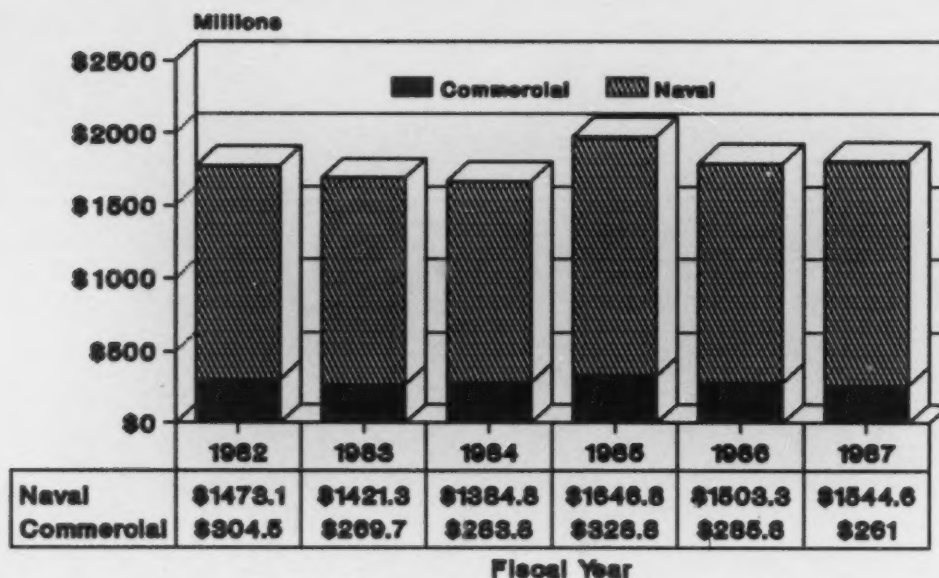
SYMBA: Shipyard Mobilization Base

Great Lakes SYMBA Yards



SYMBA: Shipyard Mobilization Base

COMPARISON OF COMMERCIAL AND NAVY SHIP REPAIR CONTRACT VALUES



COMMERCIAL REPAIR DOLLAR DISTRIBUTION FOR 1987 BY TYPE AND FLAG

Ship Type	Total	U.S. Flag	Foreign Flag
Tanker	\$ 64,214,000	\$ 57,380,000	\$ 6,834,000
Bulk/OBO	36,113,000	24,703,000	11,410,000
Containership	19,676,000	16,114,000	3,562,000
Barge Carrier	5,817,000	5,817,000	-
Break/Bulk	18,569,000	18,184,000	385,000
Passenger	53,327,000	3,647,000	49,680,000
Other	63,380,000	54,709,000	8,671,000
TOTAL	\$ 261,096,000	\$ 180,554,000	\$ 80,542,000

MEMBERS & STAFF

REGULAR MEMBERS

ADDSCO Industries, Inc.
Mobile, AL

The American Ship Building
Company
Tampa, FL

Avondale Industries, Inc.
New Orleans, LA

Bath Iron Works Corporation
Bath, ME

Bethlehem Steel Corporation
Bethlehem, PA

Capital Marine Corporation
Chester, PA

Continental Maritime Industries,
Inc.
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General Dynamics Corporation
St. Louis, MO

General Ship Corporation
East Boston, MA

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Jacksonville Shipyards, Inc.
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The Jonathan Corporation
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Marinette, WI

McDermott Corporation
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Metro Machine Corporation
Norfolk, VA

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Newport News Shipbuilding
Newport News, VA

Norfolk Shipbuilding & Drydock
Corporation
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Northwest Marine Iron Works
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Peterson Builders, Inc.
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Robert E. Derecktor of Rhode
Island, Inc.
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Southwest Marine, Inc.
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Textron Marine Systems
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Todd Shipyards Corporation
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Colt Industries, Inc.
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Dresser Pump Division
Dresser Industries, Inc.
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AFFILIATE MEMBERS

The Bingham Group
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PacOrd, Inc.
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JJH Inc.
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John J. McMullen Associates, Inc.
New York, NY

M. Rosenblatt & Son, Inc.
New York, NY

ASSOCIATION MEMBERS

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Dock Association
Brooklyn, NY

South Tidewater Association of
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**Shipbuilders
Council of
America**

1987 IN REVIEW



**MANPOWER
AND LABOR
ISSUES REPORT**

This publication is the third of a series of quarterly statistical reports to be issued by the Shipbuilders Council of America, which will analyze the following issues on an annual basis. The schedule set for these reports is as follows:

March:	New Construction
June:	Ship Repair
September:	Manpower and Labor Issues
December:	Contracts/Financial

Shipbuilders Council of America

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Washington, DC 20005-3553

202-775-9060

OVERVIEW

This report on Manpower and Labor Issues represents the first attempt by the Shipbuilders Council of America to understand the dynamics of our production work force. It is the production work force that is really the backbone of our industry. Not only are the demographics of the labor force important, but changes in the composition of the work force dramatically highlight the policy issues that underlie the industry's condition. Thus the demographic analysis confirms some views about the work force and challenges long-held notions, particularly about the "aging" of the work force. The industry is an employer of minorities, in excess of the proportion of minorities to the total population. Therefore, the shipbuilding and ship repair industry is providing an important segment of the population with skills that make it likely that they can be retained for a lifetime of productive labor. This lifetime of opportunity can only be assured if the current production capacity is not allowed to erode further.

The labor force is not aging as rapidly as the total population and this fact challenged our long-held view that the work force was creeping toward retirement. In fact, fully one-third of labor is in the 30-39 year age group. Furthermore, the work force is slightly more educated than the standard for the population as a whole; another indicator of the industry's need for a technologically-based labor component.

Demographics aside, the remainder of the report presents a picture of a troubled industry trying to maintain its unique labor capability. For example, there are critical skill shortages and these shortages have existed in some shipyards for the past 18 months. Fully, 50 percent of the sample were reporting shortages in marine electricians, sheet-metal workers, and machine welders.

In the area of comparative wage rates, it is clear that American shipyards have worked diligently to maintain labor costs within reasonable bands of growth. This has largely been in response to competitive pressures within the domestic market. But, it also demonstrates that American yards could be more competitive in the international market. In virtually every case around the world, rates have increased in relation to the United States.

Some would argue that rates in South Korea and Taiwan are still substantially below those of the United States and that is certainly true. But, it is also true that there is an argument that the U.S. and South Korea are pursuing different market niches, where, in the construction of technologically complex vessels, lower labor rates can be offset. In addition, current contract difficulties in South Korean shipyards which are unable to produce at the artificially low prices quoted to ship owners, have made it clear that low labor rates are not a guarantor of success. The comparative labor rates also indicate that in high labor cost nations that are still receiving commercial shipbuilding orders (e.g., West Germany), subsidies and government support programs are being used to offset those higher rates. The Council believes that extensive government intervention in the marketplace in Europe and Japan is distorting the international marketplace and is anti-competitive.

Moreover, the data within this report confirms the importance of the Navy as the primary customer of the industry and shows that this dominance of the market has occurred within the last ten years. This is a direct result of the collapse of the commercial market driven by the destruction of the Construction-differential Subsidy program by the Reagan Administration. This policy decision was taken in 1981 without a concurrent commitment to convince our international trading partners to do likewise. As a consequence, instead of being able to take advantage of lower labor rates to create a market niche, the American industry watched innumerable foreign government subsidy programs take that niche away from us.

A final note: When current employment statistics are analyzed, it is interesting to see that public shipyard employment has increased since 1982. This has occurred in a time period when the private sector has absorbed severe capacity reductions. Does the country really want the more expensive public sector to survive alone despite statutory obligations that require the Defense Department to rely on the private sector for the provision of defense goods and services?

John J. Stocker
President

SHIPYARD LABOR SURVEY

In order to provide clear up-to-date information on the composition of the work force in the U.S. shipbuilding and ship repair industry, the Council sampled its membership to ascertain the demographic makeup of the production work force. As shown in the following charts, the Council sampled production workers for Race or National Origin, Age, and Education Level. In addition, the shipyards were queried regarding shortages of workers in certain occupations.

The data confirmed a long held view that the industry is an employer and trainer of skills for the economically disadvantaged. Fully one-third of the production work force is nonwhite. In addition while not reported here, but on the basis of data collected, ten percent of the production work force is female. This strongly indicates the role the industry has in training two important segments of American society.

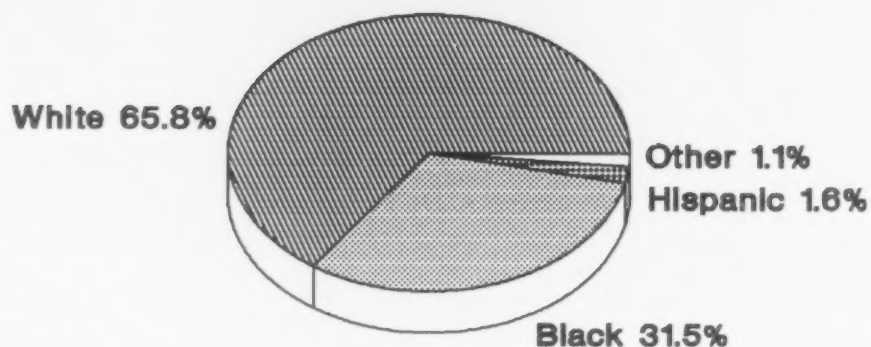
The lack of stable work load is creating a problem in retention of these newly trained workers, particularly when shortages in the skilled occupation groups is examined. The survey included all shipyard skills in the Bureau of Labor Statistics' makeup of production worker categories. As can be seen from the data on page four, 12 of these skilled occupations central to shipbuilding and ship repair were reported in short supply by at least one third of yards responding to the survey. The shortages run the gamut of skill areas but include electronic technicians, machinists, pipefitters, sheet-metal workers, welders and crane operators. Of equal concern is the length of time these shortages have been recorded. Of the 12 occupational skills reported by at least one third of the responding yards, nine of the shortage occupations have existed for an average span of over a year. As a result, this data will be closely monitored in future years to examine trends in either the number of occupations reporting shortages or in the length of time the shortages have existed. While most managers in the industry have been aware of shortages in certain skills in individual yards, this is the first time that the breadth of the problem for the industry has been detailed.

The biggest surprise to the Council was the relatively young age of the work force. A preconceived notion is that in a shrinking industry the work force would tend toward more senior employees, but that clearly is not the case. In fact, only 17.2 percent of production workers are over fifty years of age while over half the total, 52.7 percent, are in the age bracket from 30 to 49 years which would normally be considered the most productive years for skilled labor. While turnover rates were not sampled as a part of our survey, individual yards have stated that the highest turnover rates occur, as expected, in the 29 and under age groupings.

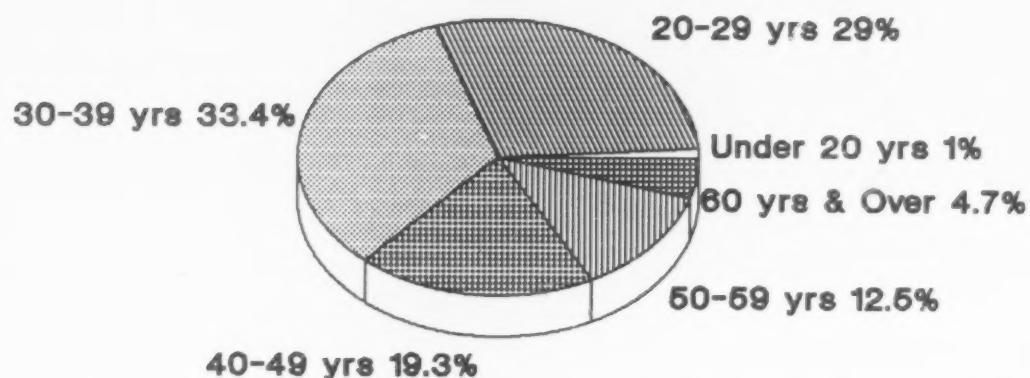
The education level of the production worker population was also a pleasant surprise. When the "other" category is added in, 78 percent of all production workers in the industry hold at least a high school diploma. This compares very favorably with the total U.S. population which the Census Bureau reported at 73.9 percent high school graduates in 1985.

DEMOGRAPHIC DISTRIBUTION OF U.S. PRIVATE SHIPYARD PRODUCTION WORKERS

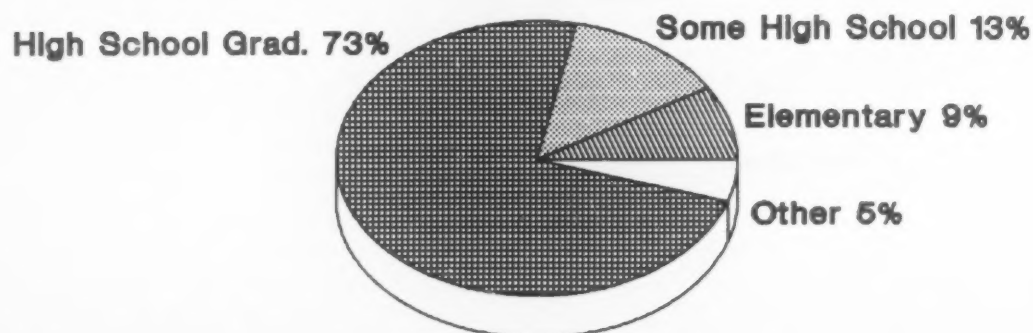
Race or National Origin



Age



Education Level



Note: Other includes 2.6% for shipyard apprentice school, 2.2% for college experience and .2% for trade school.

SKILL SHORTAGES

Survey data is recorded for each occupation noted in short supply. One yard reported shortages in all major skill areas. The average period of shortage reflects the period of time in which the skill shortage has existed. Survey data does not provide any indication as to when shortages are expected to be rectified.

<u>Occupation/Production</u>	<u>Percent of Yards Reporting</u>	<u>Avg. Period of Shortage</u>
Electronic technicians	33	17 months
Inspectors	17	6 months
Insulators	25	12 months
Loftworkers	25	18 months
Machine-tool operators	33	7 months
Machinists, production	42	13 months
Marine electricians	50	15 months
Marine machinists	42	16 months
Marine pipefitters	50	11 months
Marine riggers	25	9 months
Painters	33	6 months
Sheet-metal workers	50	19 months
Shipfitters	42	16 months
Shipwrights	25	9 months
Welders	42	17 months
Welders, machine (arc or gas)	50	17 months
<u>Occupation/Maintenance</u>		
Carpenter, maintenance	17	9 months
Electricians, maintenance	33	13 months
Mechanics, maintenance	25	13 months
Pipefitters, maintenance	25	13 months
Welders	25	9 months
<u>Occupation/Material Movement and Service</u>		
Crane operators	42	11 months
Guards	17	9 months
Forklift operators	17	9 months
Truckdrivers	17	9 months

WORLDWIDE COMPENSATION RATES

The following table and charts indicate clearly that overall compensation for shipyard employees in the United States has declined slightly over the past five years while wages in the rest of the world have risen, and in some cases risen precipitously. These compensation rates include all benefits and of course are factored to account for currency evaluation. The point to be made is that the compensation packages offered to U.S. workers are competitive with a majority of European shipbuilding nations and becoming more competitive with Japan as time passes. This data does not take into account social programs financed by foreign governments, e.g., national health insurance programs in some countries. Thus, the actual comparative labor cost are certainly understated.

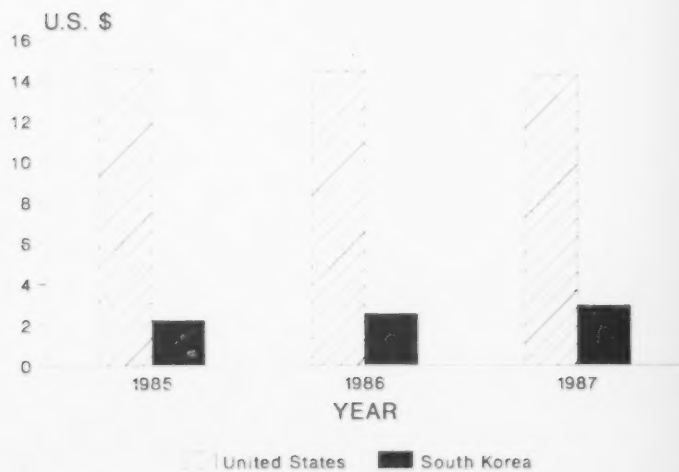
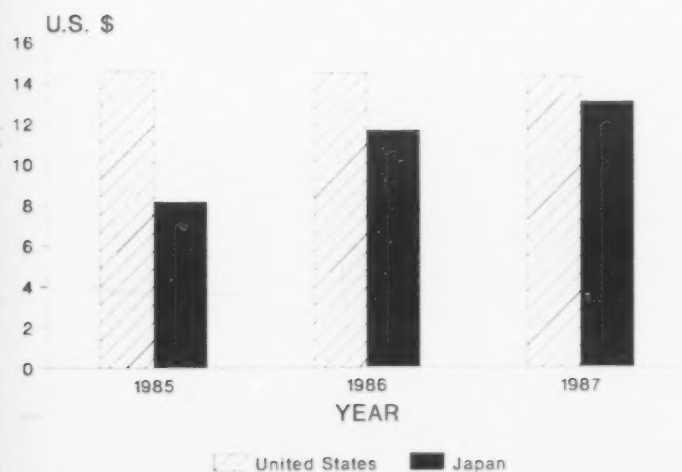
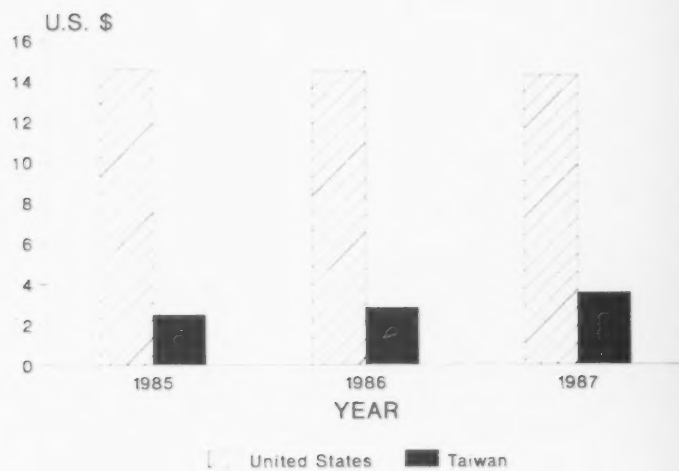
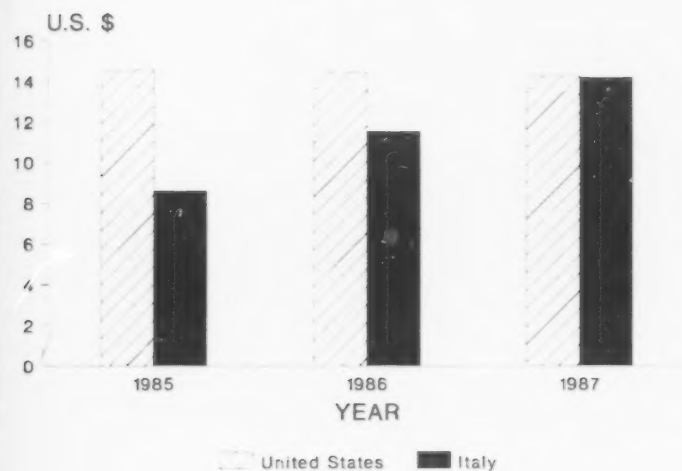
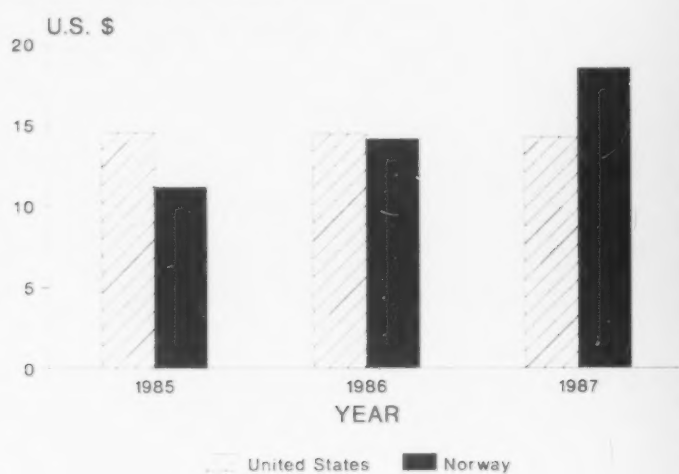
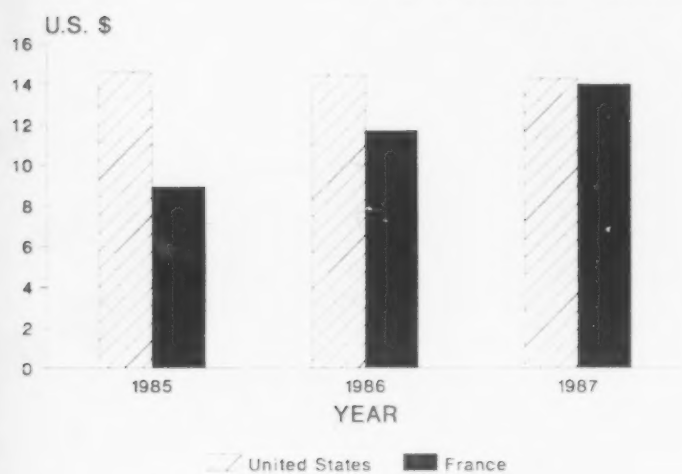
While not shown on these charts, the South Korean wage and benefits package has recently begun to rise rapidly in response to the general dissatisfaction of labor with their remuneration. This in turn has caused Korean shipbuilders to recently default on option contracts for newbuildings and in some cases request renegotiation of contracts at up to twice the previous price.

In the final analysis, it would appear that escalating labor rates in Europe are being offset by government subsidy programs since European shipyards continue to receive new orders. The pricing of these new orders can not be solely explained by improved labor productivity in the face of the rates depicted here.

HOURLY COMPENSATION IN U.S. \$ FOR SHIPYARD WORKERS WORLDWIDE

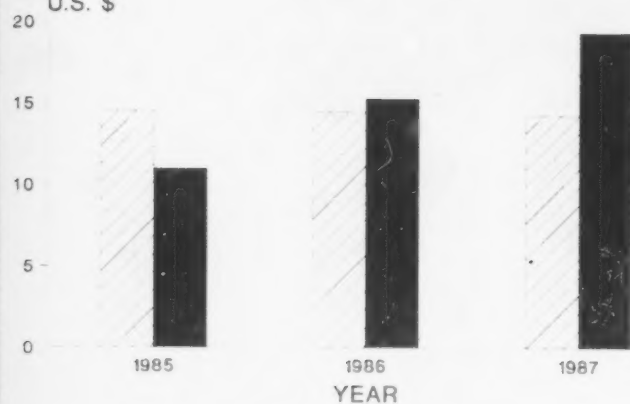
	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
United States	13.48	13.81	14.21	14.57	14.47	14.26
Canada	11.51	12.56	12.28	11.95	12.08	11.74
Hong Kong	2.34	2.14	2.19	2.34	2.45	2.50
Japan	6.96	7.68	7.76	8.13	11.60	13.00
South Korea	2.08	2.21	2.13	2.19	2.53	2.92
Singapore	2.50	2.88	3.11	3.20	3.08	3.19
Taiwan	2.01	2.20	2.73	2.47	2.80	3.53
Belgium	10.91	10.35	9.78	10.21	13.79	16.48
Denmark	9.56	9.26	8.46	8.62	11.70	15.55
Finland	8.79	8.42	8.79	9.14	12.89	15.67
France	8.95	8.97	8.86	8.92	11.66	13.97
Germany	11.60	11.64	10.68	11.00	15.26	19.35
Greece	4.98	4.61	4.49	4.52	5.08	4.90
Italy	8.32	8.63	8.02	8.58	11.53	14.18
Netherlands	10.02	9.57	8.63	8.61	12.61	15.23
Norway	11.59	11.19	10.90	11.16	14.15	18.50
Spain	6.69	5.69	5.35	5.06	7.74	9.41
Sweden	10.43	9.29	9.56	10.03	12.92	15.57
United Kingdom	6.97	6.47	6.11	6.37	7.73	8.91

COMPARATIVE LABOR RATES



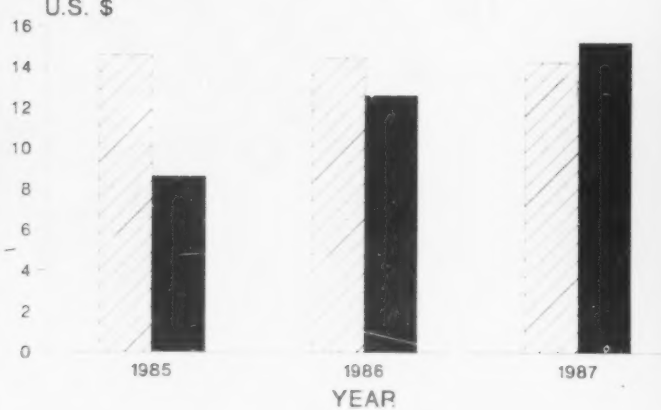
COMPARATIVE LABOR RATES

U.S. \$



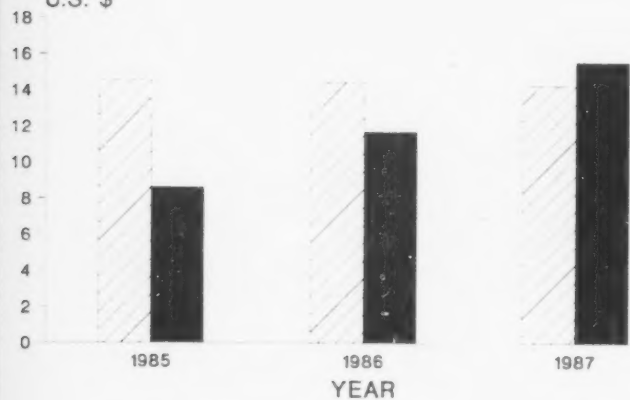
United States Germany

U.S. \$



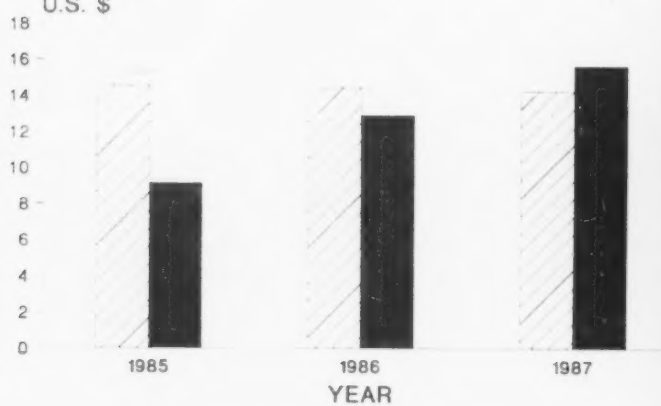
United States Netherlands

U.S. \$



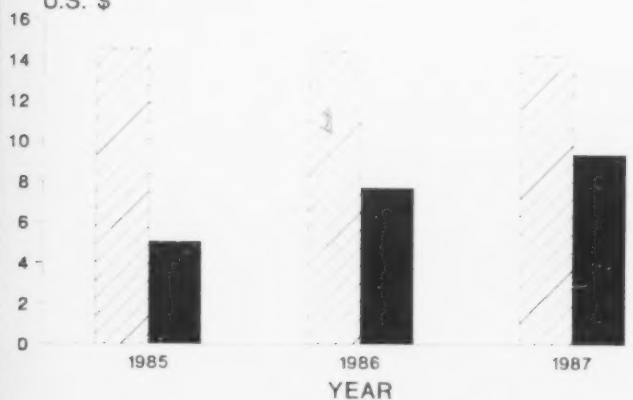
United States Denmark

U.S. \$



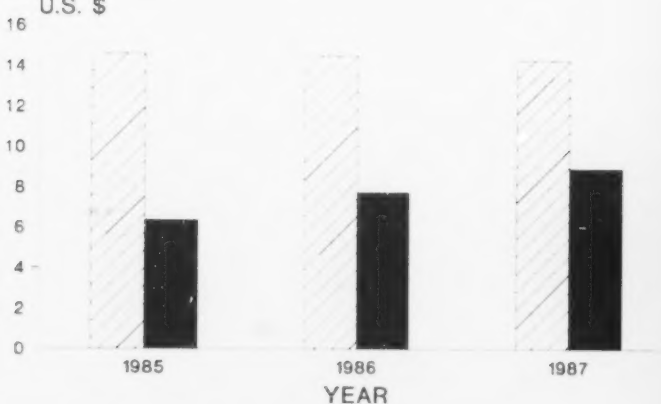
United States Finland

U.S. \$



United States Spain

U.S. \$



United States United Kingdom

NAVAL SHIPYARD EMPLOYMENT *

As of October 1, Each Year

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
<u>East Coast</u>						
Charleston	7,795	8,414	8,329	8,373	8,348	8,557
Norfolk	11,990	13,007	13,388	12,645	12,136	12,502
Philadelphia	9,645	11,535	11,182	10,089	8,708	9,210
Portsmouth	8,062	8,831	8,386	8,422	7,699	8,037
<u>West Coast</u>						
Puget Sound	10,924	12,309	12,404	11,815	11,178	12,201
Mare Island	9,482	10,762	10,013	9,872	9,440	9,763
Long Beach	7,043	7,003	7,083	6,502	5,445	5,875
Pearl Harbor	<u>6,735</u>	<u>7,125</u>	<u>6,854</u>	<u>6,654</u>	<u>6,293</u>	<u>6,218</u>
Totals	71,676	78,986	77,639	74,372	69,247	72,363

* Naval shipyard employment does not include other public sector activities dedicated to Navy ship repair. These other activities include SRFs (Ship Repair Facilities), Trident submarine repair facilities and SIMAs (Shore based Intermediate Maintenance Activities), among others.

SYMBA SHIPYARD EMPLOYMENT **

Private Yards - Total Employment

As of October 1, Each Year

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
	110	100	94	83	74	69
	<u>Yards</u>	<u>Yards</u>	<u>Yards</u>	<u>Yards</u>	<u>Yards</u>	<u>Yards</u>
East Coast	82,040	80,981	80,098	77,067	70,412	70,636
West Coast	30,841	23,909	20,411	17,177	15,092	10,666
Gulf Coast	29,752	20,585	21,568	18,550	19,980	20,450
Great Lakes	2,973	1,782	1,964	2,634	4,347	1,824
Non Conus	<u>585</u>	<u>488</u>	<u>273</u>	<u>559</u>	<u>358</u>	<u>364</u>
Totals	146,191	127,745	124,314	115,987	110,189	103,940

** Employment data reflects changes to the original Shipyard Mobilization Base (SYMBA) as identified by the Navy and Maritime Administration. Original 110 private shipyards were deemed essential for mobilization in 1982.

INDUSTRY EMPLOYMENT DISTRIBUTION

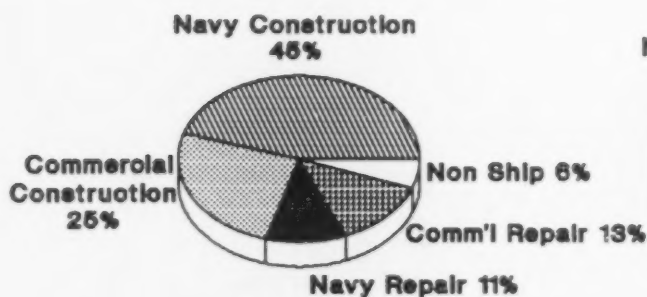
The five charts in this segment of the report provide graphic proof of the domination of this industry by the United States Navy. In January 1978, the Navy accounted for 56 percent of the work load for over 150,000 total workers in the industry. Now, with an employee base only two thirds its size of ten years ago, the Navy occupies the efforts of 89 percent of the entire industry. Based on these percentages, the Navy provides work in 1988 for approximately 10,000 more employees than ten years ago but the collapse of the remainder of the business base has cost over 55,000 jobs in the last ten years.

The size of the 1988 pie charts represent the ratio of 1988 workers to those holding jobs in 1978 so that the reader can discover at a glance these market areas hardest hit by the decline. Also clearly shown is the destruction of the balanced market share within the geographic areas. The West Coast is particularly illustrative. This area has gone from a well balanced market in 1978 to almost total reliance on Navy ship repair in 1988. While the absolute numbers are smaller, the Great Lakes commercial construction segment has gone from 60 percent of the market to zero in ten years. This type of market dislocation could not have been predicted - and was not.

In sum, the charts clearly display an industry that is shrinking and which has only one major customer - the U.S. Navy. Note that the following pie charts reflect total employment in both the SYMBA (shipyard mobilization base) and non-SYMBA yards.

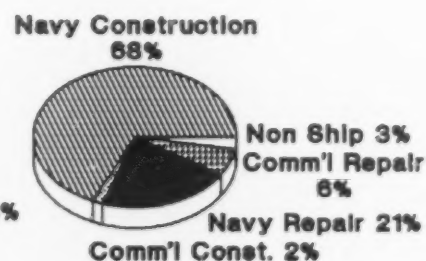
NATIONAL DISTRIBUTION BY EMPLOYMENT ACTIVITY

January, 1978



155,000 Workers

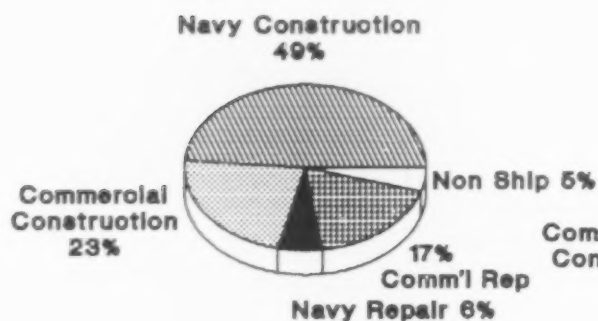
January, 1988



109,200 Workers

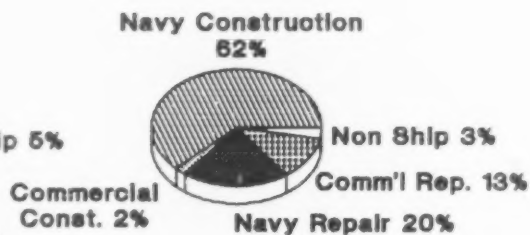
GULF COAST DISTRIBUTION BY EMPLOYMENT ACTIVITY

January, 1978



43,700 Workers

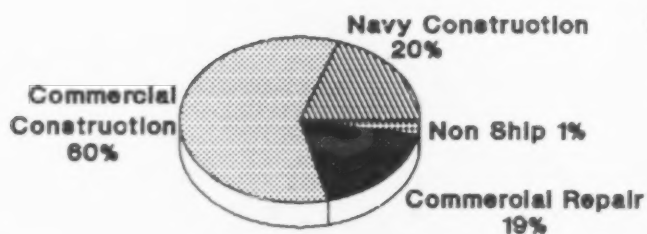
January, 1988



21,600 Workers

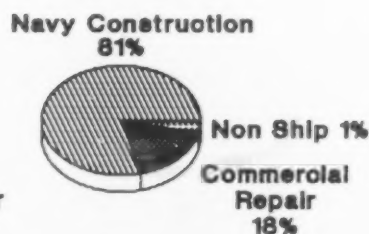
GREAT LAKES DISTRIBUTION BY EMPLOYMENT ACTIVITY

January, 1978



4,900 Workers

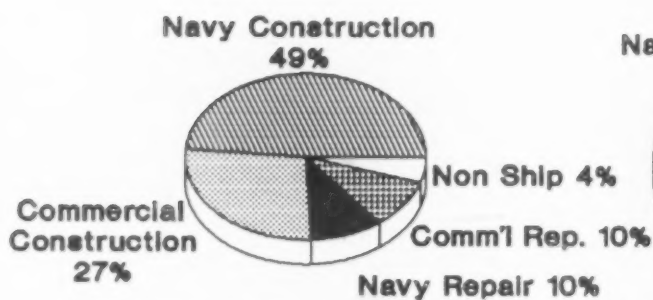
January, 1988



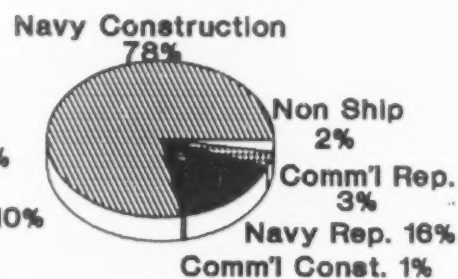
2,100 Workers

EAST COAST DISTRIBUTION BY EMPLOYMENT ACTIVITY

January, 1978

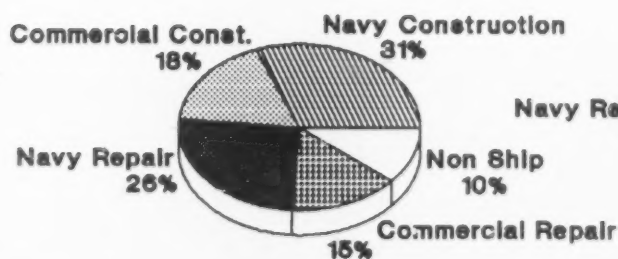
82,800 Workers

January, 1988

73,600 Workers

WEST COAST DISTRIBUTION BY EMPLOYMENT ACTIVITY

January, 1978

23,600 Workers

January, 1988

11,900 Workers

YARDS MOVING TO LUMP-SUM WAGE PACTS

In a conscious effort to keep labor costs in line and to increase productivity, management in private domestic shipyards has devised a number of innovative provisions in collective bargaining agreements with union workers. One such provision is the use of lump-sum payments in lieu of general wage increases to union employees. The first shipyard to successfully negotiate with its union a lump-sum payment provision was the Electric Boat Division of General Dynamics Corporation at its Groton, CT facility in December 1984.

The typical lump-sum payment is a one-time, once-a-year increase in a worker's earnings. Employers have taken the position that the lump-sum is not added to a worker's base pay for the purposes of calculating overtime rates, vacation pay, and fringe benefits. Also, the lump-sum should not increase the base pay of the worker for subsequent pay raises.

Recently, the position of the employers was upheld in litigation in the case of Minizza v. Stone Container Corp. (No. 87-1348). Here, the United States Court of Appeals for the Third Circuit (with one judge dissenting) declared that a negotiated lump-sum payment - designated as an inducement for contract ratification - did not have to be included in the "regular rate" for purposes of Fair Labor Standards Act overtime calculations.

Labor law experts caution that several steps should be taken during bargaining to demonstrate the parties' intention that lump-sum payments are not to be part of the regular wage rate for overtime purposes. These are--

- o If possible, the agreement should expressly state that a "ratification bonus" is designed only to secure ratification and is not intended to be viewed as compensation for services rendered.
- o The agreement should expressly state the parties' intention that the bonus is not to have a "roll-up" effect on vacation pay, holiday pay, overtime or other benefits tied to regular hourly wage rates.
- o The lump-sum payment should not be conditioned on the hours worked by employee recipients.
- o The lump-sum payment should be made unconditionally to those employees on the rolls on the date of ratification of the agreement, without any other eligibility requirements tied to future (or past) employment.

In this era of fiscal constraints on Navy budgets, the more shipyard management can rein in costs the more vessels can be built and repaired for the taxpayer's dollar. Thus, lump-sum payments can produce real tangible benefits to both management and the Navy, the predominant customer of the U.S. shipbuilding and repair industry.

The Shipbuilders Council of America estimates that over 85 percent of production workers in the shipbuilding and ship repair industry are covered by lump-sum payments in lieu of general wage increases in current labor agreements.

INDEX OF STRAIGHT-TIME HOURLY EARNINGS
FOR SELECTED U.S. PRIVATE SHIPYARDS
(September 1980 = 100)

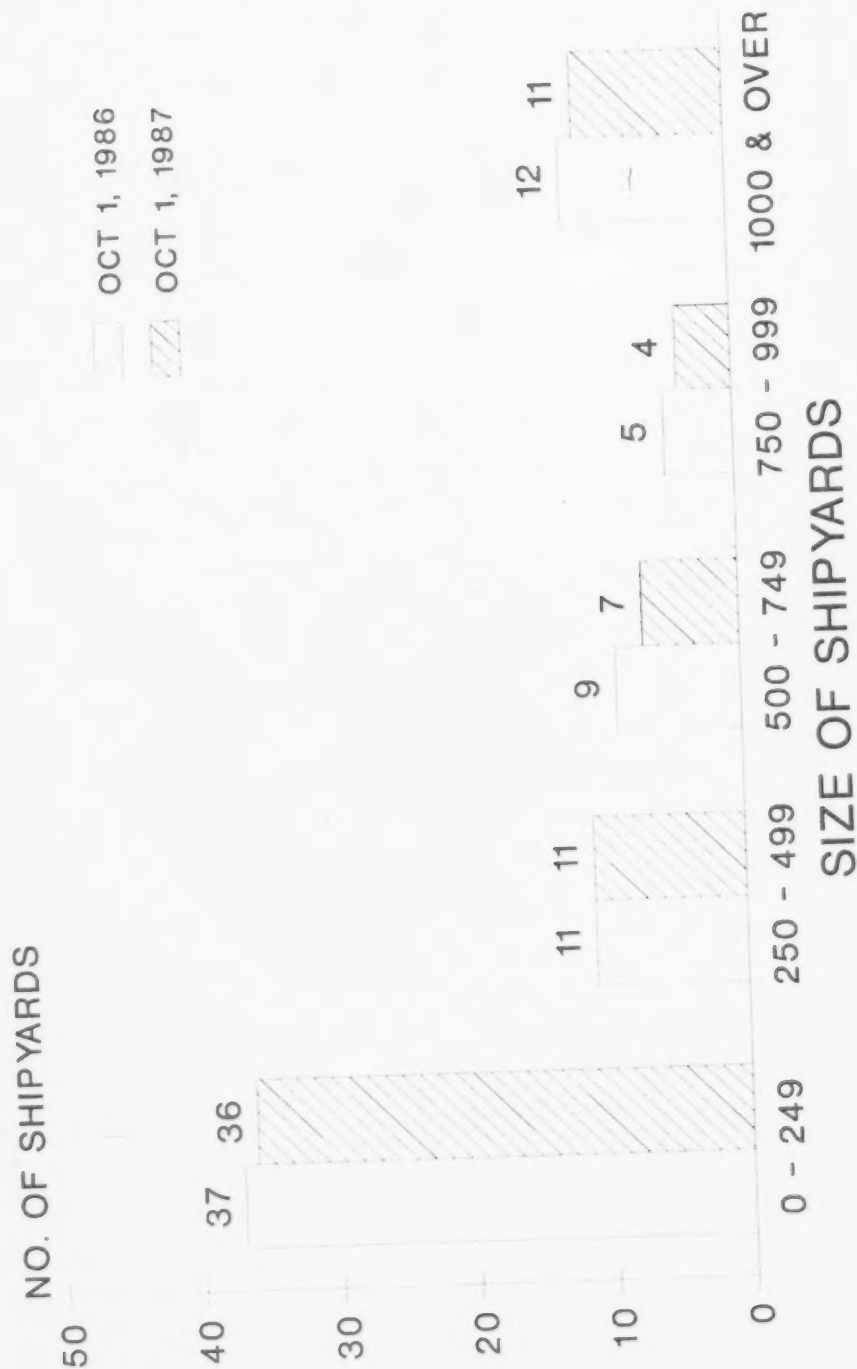
	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
January	113.6	121.3	127.6	129.1	132.5	136.6	134.9
February	114.4	121.8	127.0	128.8	132.4	136.3	134.3
March	114.5	121.9	126.9	131.0	132.4	136.5	134.3
April	114.6	121.8	126.6	130.9	132.7	136.6	
May	114.3	121.9	126.0	130.9	135.3	136.5	
June	114.1	121.3	125.7	130.6	134.9	136.6	
July	116.4	122.5	126.4	130.6	135.4	137.0	
August	117.4	122.5	126.7	130.9	135.4	136.4	
September	118.1	123.1	126.8	130.9	135.5	136.4	
October	120.0	124.0	127.7	131.6	135.9	135.6	
November	120.0	126.3	127.7	131.4	135.7	134.9	
December	120.6	127.0	128.6	131.4	135.9	134.9	
Annual Avg	116.5	123.0	127.0	130.7	134.5	136.2	

MATERIAL INDEX FOR
NAVSEA STEEL VESSEL CONTRACTS
(1967 = 100)

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
January	308.7	308.2	320.2	326.0	321.9	325.7	342.7
February	309.3	311.7	321.5	326.4	322.3	326.1	346.6
March	309.5	312.5	322.1	327.0	322.2	325.8	348.0
April	310.1	312.7	322.8	327.0	322.9	325.6	350.3
May	309.8	312.6	323.8	326.7	323.3	326.2	350.8
June	308.4	312.8	323.6	323.2	323.1	326.7	351.7
July	308.5	313.6	324.3	326.4	323.5	328.1	
August	308.4	313.8	324.4	326.7	323.7	329.2	
September	308.2	316.3	324.9	326.6	324.1	332.0	
October	309.2	316.3	325.3	326.6	324.2	338.4	
November	308.8	317.1	325.3	326.1	324.0	340.2	
December	307.7	318.4	325.2	326.2	324.2	340.6	
Annual Avg.	308.9	313.8	323.6	326.5	323.2	330.4	

Source: Bureau of Labor Statistics

EMPLOYMENT DISTRIBUTION U.S. PRIVATE SHIPYARD BASE



EARNINGS AVERAGES FOR SELECTED OCCUPATIONS IN U.S. SHIP YARDS BUREAU OF LABOR STATISTICS WAGE SURVEY OF OCTOBER 1986

Department and Occupation	United States			Atlantic Coast			Gulf Coast			Great Lakes			Pacific Coast		
	Number of Workers	Average Hourly Earnings		Number of Workers	Average Hourly Earnings		Number of Workers	Average Hourly Earnings		Number of Workers	Average Hourly Earnings		Number of Workers	Average Hourly Earnings	
Production															
Electronics technicians	816	\$11.89		-	-		-	-		-	-		-	-	
Electronics technicians II	306	11.91		-	-		-	-		-	-		-	-	
Electronics technicians III	285	12.66		-	-		-	-		-	-		-	-	
Inspectors:															
Class B	197	11.64		90	\$11.44		-	-		-	-		-	-	
Insulators	608	11.16		460	11.19		-	-		-	-		-	-	
Loft Workers	116	12.01		50	10.49		-	-		-	-		-	-	
Machine-tool operators, production	804	11.34		730	11.19		-	-		-	-		-	-	
Class A	724	11.44		-	-		-	-		-	-		-	-	
Class B	60	10.09		46	9.47		-	-		-	-		46	\$13.09	
Class C	20	11.31		11	9.14		-	-		-	-		-	-	
Machinists, production	792	11.16		10	9.14		-	-		-	-		-	-	
Marine electricians	3,576	11.31		-	-		112	\$11.05		-	-		-	-	
Marine machinists	2,851	11.36		1,911	10.80		-	-		-	-		135	13.16	
Marine pipefitters	3,661	11.41		1,875	11.06		415	11.14		199	\$10.91		690	13.39	
Marine riggers	1,397	11.14		1,632	10.99		-	-		257	11.04		509	12.69	
Marine trades helpers	1,978	7.54		962	10.69		-	-		-	-		748	12.93	
Painters	3,363	11.14		-	-		-	-		-	-		249	12.99	
Sheet-metal workers	2,312	11.69		-	-		893	10.78		-	-		-	-	
Shipfitters	4,339	11.36		1,398	11.44		-	-		125	10.59		433	13.25	
Shipwrights	1,915	11.42		2,169	11.28		882	10.52		-	-		459	12.95	
Welders, hand	5,558	11.32		-	-		-	-		-	-		880	12.76	
Class A	4,011	11.43		-	-		1,030	9.99		-	-		-	-	
Class B	1,547	11.03		-	-		584	10.81		-	-		880	12.86	
Welders, machine(arc or gas)	1,290	11.44		141	10.30		445	8.92		-	-		-	-	
Maintenance															
Carpenters, maintenance	104	11.22		-	-		-	-		-	-		-	-	
Electricians, maintenance	253	11.34		93	11.20		-	-		-	-		-	-	
Mechanics, maintenance	219	10.79		183	11.35		-	-		-	-		-	-	
Pipefitters, maintenance	176	11.53		148	11.52		-	-		-	-		17	13.18	
Welders, maintenance	69	10.90		58	10.70		-	-		-	-		-	-	
Material movement and service															
Crane operators	709	11.54		345	11.59		196	10.96		55	11.32		97	12.97	
Electric bridge(traveling)	200	11.61		-	-		-	-		-	-		-	-	
Gantry crane	216	11.58		137	11.88		40	10.66		-	-		-	-	
Other (including combinations)	260	11.48		-	-		-	-		-	-		-	-	
Guards	388	8.14		-	-		-	-		50	11.38		-	-	
Guards I	170	7.03		-	-		-	-		-	-		-	-	
Guards II	130	10.29		-	-		-	-		-	-		36	13.47	
Janitors, porters, or cleaners	682	8.94		-	-		-	-		-	-		44	10.86	
Power-truck operators	366	10.36		-	-		-	-		-	-		-	-	
Forklift operators	295	10.20		-	-		-	-		-	-		41	12.06	
Truckdrivers	270	10.65		114	10.52		60	8.50		-	-		-	-	
													48	13.37	

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